

Math Coverage Module 8, 9, 10 & 11



تم تحميل هذا الملف من موقع المناهج الإماراتية

موقع المناهج ← المناهج الإماراتية ← الصف الثامن ← رياضيات ← الفصل الثالث ← ملفات متنوعة ← الملف

تاريخ إضافة الملف على موقع المناهج: 02:22:38 2026-06-21

ملفات اكتب للمعلم اكتب للطالب | اختبارات الكترونية | اختبارات | حلول | عروض بوربوينت | أوراق عمل
منهج انجليزي | ملخصات وتقارير | مذكرات وبنوك | الامتحان النهائي | للمدرس

المزيد من مادة
رياضيات:

إعداد: Saleh Abu Najla

التواصل الاجتماعي حسب الصف الثامن



صفحة المناهج
الإماراتية على
فيسبوك

الرياضيات

اللغة الانجليزية

اللغة العربية

التربية الاسلامية

المواد على تلغرام

المزيد من الملفات بحسب الصف الثامن والمادة رياضيات في الفصل الثالث

نموذج تدريبي للاختبار الختامي كراسة تدريبات

1

أسئلة متوقعة للامتحان 2026م بدون حل

2

حلول ملزمة هيكل امتحان

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ملزمة هيكل امتحان غير محلول

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Reveal Coverage Grade 8 GEN Solution

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GRADE 8 ADV
EOT 3

MATH
COVERAGE

Module 8,9,10&11

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Module 8: Transformations

1 Translate figures on the coordinate plane and use coordinate notation to describe translations.

1-6

443

M8L1: Translations

A **translation** is a transformation that slides a figure from one position to another without turning it.

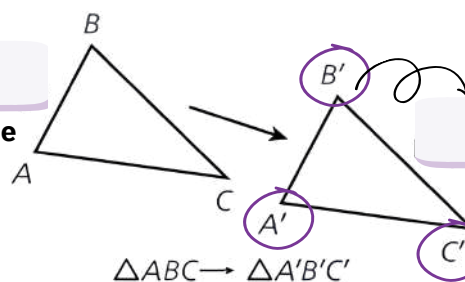
You can use the following **coordinate notation** to describe the translation:

$$(x, y) \rightarrow (x + a, y + b)$$

Add **a** to the **x-coordinate** and add **b** to the **y-coordinate**.

Preimage

Original shape



Image

Resulting shape after applying the transformation

x + a means
move **a** units
left or right.

x

➡ + right

➡ - left

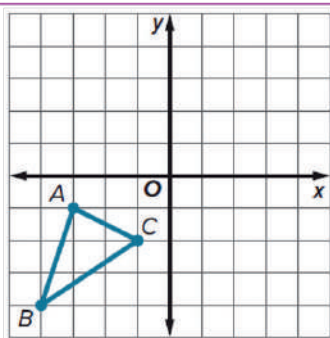
y

↑ + up

↓ - down

y + b means
move **b** units
up or down.

1) The graph of $\triangle ABC$ is shown. Graph the image translation of 4 units right and 1 unit up. Write the coordinates of the image.



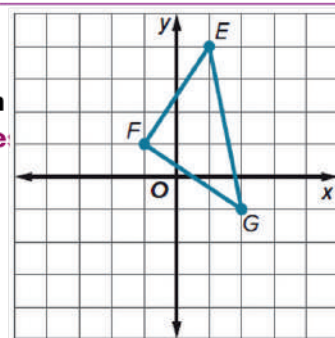
a) $A'(1, 0)$, $B'(0, -3)$, $C'(3, -1)$

b) $A'(0, 1)$, $B'(-1, -3)$, $C'(2, -1)$

c) $A'(1, -2)$, $B'(0, -5)$, $C'(3, -3)$

d) $A'(5, 0)$, $B'(4, -3)$, $C'(7, -1)$

2) The graph of $\triangle EFG$ is shown. Graph the image of $\triangle EFG$ after a translation down. Write the coordinate



a) $E'(4, 3)$, $F'(2, 0)$, $G'(5, -2)$

b) $E'(-2, 5)$, $F'(-4, 2)$, $G'(-1, 0)$

c) $E'(-2, 3)$, $F'(-4, 0)$, $G'(-1, -2)$

d) $E'(-1, 3)$, $F'(-3, 0)$, $G'(0, -2)$

3) Triangle QRS has vertices $Q(-2, 2)$, $R(-3, -4)$, and $S(1, -2)$. Write the coordinate notation for each translation given. Then write the coordinates of $\triangle Q'R'S'$ after each translation.

7 units right and 4 units down

a) $(x, y) \rightarrow (x+7, y-4)$;
 $Q'(5, -2)$, $R'(4, -8)$,
 $S'(8, -6)$

b) $(x, y) \rightarrow (x+7, y+4)$;
 $Q'(5, 6)$, $R'(4, 0)$, $S'(8, 2)$

c) $(x, y) \rightarrow (x-7, y-4)$;
 $Q'(-9, -2)$, $R'(-10, -8)$,
 $S'(-6, -6)$

d) $(x, y) \rightarrow (x+4, y-7)$;
 $Q'(2, -5)$, $R'(1, -11)$,
 $S'(5, -9)$

4) Triangle QRS has vertices $Q(-2, 2)$, $R(-3, -4)$, and $S(1, -2)$. Write the coordinate notation for each translation given. Then write the coordinates of $\triangle Q'R'S'$ after each translation.

2 units left and 3 units up

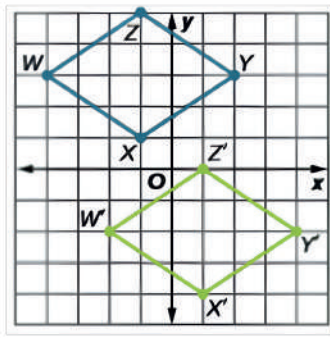
a) $(x, y) \rightarrow (x+2, y+3)$;
 $Q'(0, 5)$, $R'(-1, -1)$,
 $S'(3, 1)$

b) $(x, y) \rightarrow (x-2, y+3)$;
 $Q'(-4, 5)$, $R'(-5, -1)$,
 $S'(-1, 1)$

c) $(x, y) \rightarrow (x-2, y-3)$;
 $Q'(-4, -1)$, $R'(-5, -7)$,
 $S'(-1, -5)$

d) $(x, y) \rightarrow (x+3, y-2)$;
 $Q'(1, 0)$, $R'(0, -6)$,
 $S'(4, -4)$

5) The preimage and image of $WXYZ$ are shown. Use **coordinate notation** to describe the translation.



a) $(x,y) \rightarrow (x+1,y-6)$

b) $(x,y) \rightarrow (x-1,y+6)$

c) $(x,y) \rightarrow (x+2,y-5)$

d) $(x,y) \rightarrow (x-6,y+1)$

6) Triangle JKL has vertices $J(-2, 2)$, $K(-3, -4)$, and $L(1, -2)$. Write the **coordinate notation** for a translation of 8 units right and 1 unit up.

a) $(x,y) \rightarrow (x+8,y+1)$

b) $(x,y) \rightarrow (x-8,y+1)$

c) $(x,y) \rightarrow (x+1,y+8)$

d) $(x,y) \rightarrow (x+8,y-1)$

2 Describe reflections of figures on the coordinate plane using coordinates and coordinate notation.

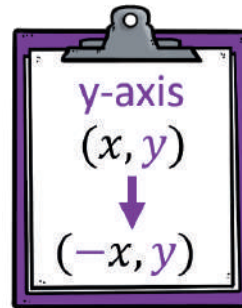
Learn

449-450

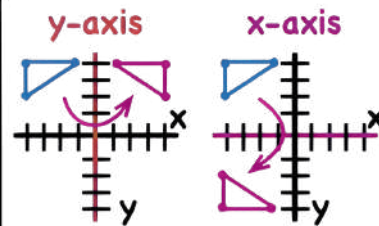
M8L2: Reflections

You can reflect a figure across the x -axis or across the y -axis.

A **reflection** is a mirror image of the original figure. It is the result of a transformation of a figure across a line called a line of reflection.



Keep **x-coordinate** the same and use the **opposite** of the **y-coordinate**.



Keep **y-coordinate** the same and use the **opposite** of the **x-coordinate**.

7) Write the coordinates of the image of triangle ABC after a **reflection across the x -axis**.

$A(1, 2) \rightarrow A'(1, \underline{\quad})$

$B(2, 4) \rightarrow B'(2, \underline{\quad})$

$C(4, 1) \rightarrow C'(4, \underline{\quad})$

a) $A'(1, -2)$, $B'(2, -4)$, $C'(4, -1)$

b) $A'(-1, 2)$, $B'(-2, 4)$, $C'(-4, 1)$

c) $A'(1, 2)$, $B'(2, 4)$, $C'(4, 1)$

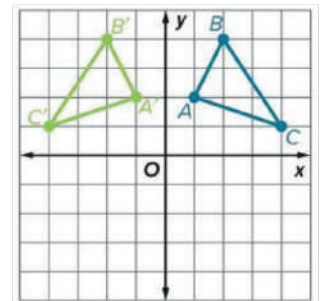
d) $A'(-1, -2)$, $B'(-2, -4)$, $C'(-4, -1)$

8) Write the coordinates of the image of triangle ABC after a **reflection across the y -axis**.

$A(1, 2) \rightarrow A'(\underline{\quad}, 2)$

$B(2, 4) \rightarrow B'(\underline{\quad}, 4)$

$C(4, 1) \rightarrow C'(\underline{\quad}, 1)$



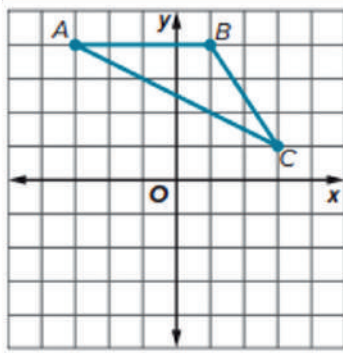
a) $A'(1, -2)$, $B'(2, -4)$, $C'(4, -1)$

b) $A'(-1, 2)$, $B'(-2, 4)$, $C'(-4, 1)$

c) $A'(-1, -2)$, $B'(-2, -4)$, $C'(-4, -1)$

d) $A'(1, 2)$, $B'(2, 4)$, $C'(4, 1)$

9) The graph of $\triangle ABC$ is shown. Write the coordinates of the image after a **reflection across the x-axis**.



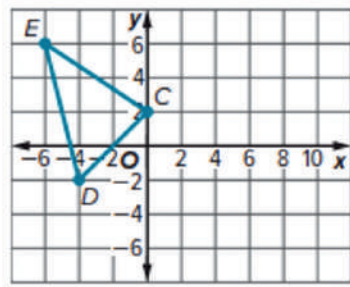
a) $A'(-3, 4)$, $B'(1, 4)$, $C'(3, 1)$

b) $A'(-3, -4)$, $B'(1, -4)$, $C'(3, -1)$

c) $A'(3, -4)$, $B'(-1, -4)$, $C'(-3, -1)$

d) $A'(-3, -1)$, $B'(1, -1)$, $C'(3, -4)$

11) The graph of $\triangle CDE$ is shown. Write the coordinates of the image after a **reflection across the line $x = 2$** .



a) $C'(-4, 2)$, $D'(-8, -2)$, $E'(-10, 6)$

b) $C'(4, 2)$, $D'(8, -2)$, $E'(10, 6)$

c) $C'(2, 4)$, $D'(-2, 8)$, $E'(6, 10)$

d) $C'(4, -2)$, $D'(8, 2)$, $E'(10, -6)$

13) Triangle TUV has coordinates $T(0, 3)$, $U(-3, 0)$, and $V(-4, 4)$. The triangle is **reflected across the y-axis**. Write the coordinate notation for a reflection across the y-axis. Then, write the coordinates of $\triangle T'U'V'$.

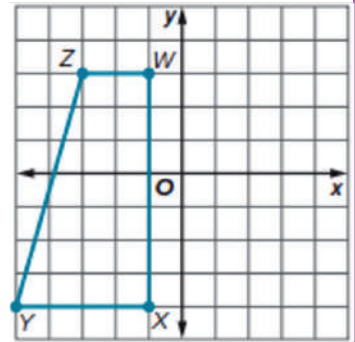
a) $(x, y) \rightarrow (-x, y)$;
 $T'(0, 3)$, $U'(3, 0)$, $V'(4, 4)$

b) $(x, y) \rightarrow (x, -y)$;
 $T'(0, -3)$, $U'(-3, 0)$, $V'(-4, -4)$

c) $(x, y) \rightarrow (-x, -y)$;
 $T'(0, -3)$, $U'(3, 0)$, $V'(4, -4)$

d) $(x, y) \rightarrow (x, y)$;
 $T'(0, 3)$, $U'(-3, 0)$, $V'(-4, 4)$

10) The graph of trapezoid $WXYZ$ is shown. Write the coordinates of the image after a **reflection across the y-axis**.



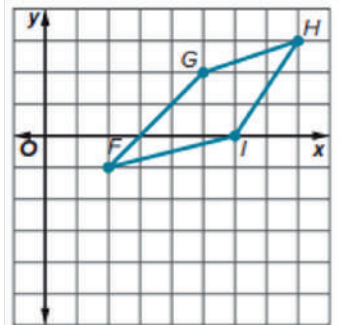
a) $W'(-1, 3)$, $X'(-1, -4)$, $Y'(-5, -4)$, $Z'(-3, 3)$

b) $W'(1, -3)$, $X'(1, 4)$, $Y'(5, 4)$, $Z'(3, -3)$

c) $W'(1, 3)$, $X'(1, -4)$, $Y'(5, -4)$, $Z'(3, 3)$

d) $W'(-1, 3)$, $X'(-1, -4)$, $Y'(5, -4)$, $Z'(3, 3)$

12) The graph of polygon $FGHI$ is shown. Write the coordinates of the image after a **reflection across the line $y = -1$** .



a) $F'(2, 1)$, $G'(5, 4)$, $H'(8, 5)$, $I'(6, 2)$

b) $F'(-2, -1)$, $G'(-5, -4)$, $H'(-8, -5)$, $I'(-6, -2)$

c) $F'(2, -1)$, $G'(5, -4)$, $H'(8, -5)$, $I'(6, -2)$

d) $F'(-2, 1)$, $G'(-5, 4)$, $H'(-8, 5)$, $I'(-6, 2)$

14) The coordinates of $\triangle LMN$ and its image are shown. Describe the transformation.

$$\begin{aligned} L(0, 0) &\rightarrow L'(0, 0) \\ M(-4, 1) &\rightarrow M'(-4, -1) \\ N(-1, 3) &\rightarrow N'(-1, -3) \end{aligned}$$

a) Reflection across the y-axis

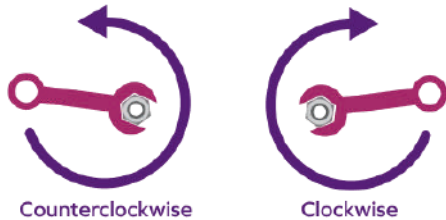
b) Reflection across the x-axis

c) Translation 2 units down

d) Rotation 180° about the origin

M8L3: Rotations

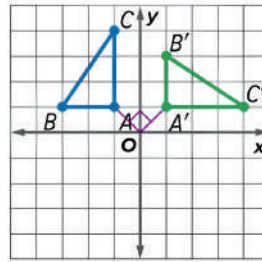
A **rotation** is a transformation in which a figure is rotated, or turned, about a fixed point. Rotation can be clockwise or counterclockwise //



There are specific rules for clockwise rotation in the coordinate plane.



90° Rotation

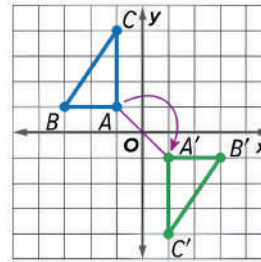


$$(x,y) \rightarrow (y,-x)$$

Swap x and y , then
put a **negative**
sign on x .



180° Rotation

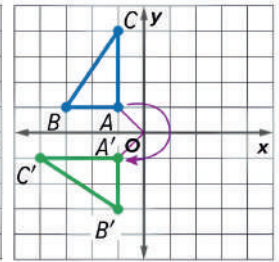


$$(x,y) \rightarrow (-x,-y)$$

Change the sign
of both
coordinates.



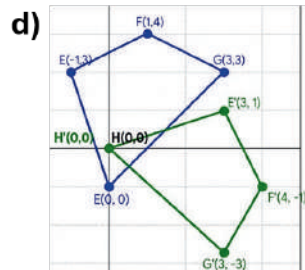
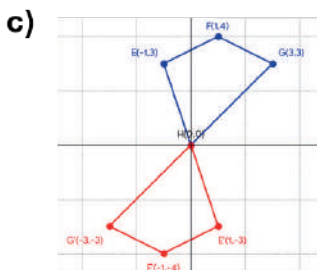
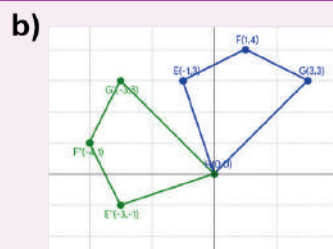
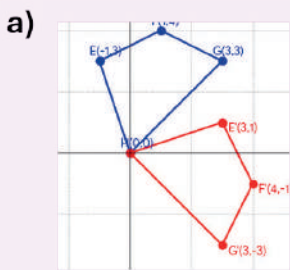
270° Rotation



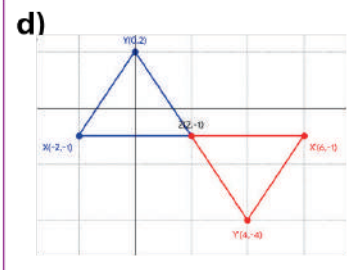
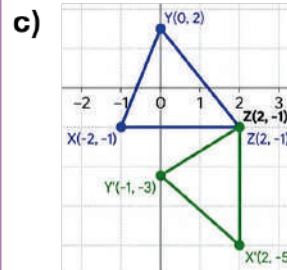
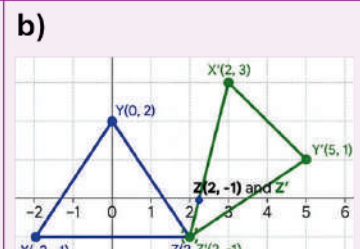
$$(x,y) \rightarrow (-y,x)$$

Swap x and y , then
put a **negative**
sign on y .

15) Polygon $EFGH$ has vertices $E(-1, 3)$, $F(1, 4)$, $G(3, 3)$, and $H(0, 0)$. Graph the figure and its image after a clockwise rotation of 90° about vertex H .



16) Triangle XYZ has vertices $X(-2, -1)$, $Y(0, 2)$, and $Z(2, -1)$. Graph the figure and its image after a clockwise rotation of 180° about vertex Z .



17) Triangle QRS has vertices $Q(-2, 2)$, $R(-3, -4)$, and $S(1, -2)$. Write the coordinate notation for each rotation given. Then write the coordinates of $\triangle Q'R'S'$ after each rotation.

clockwise rotation of 180° about the origin

a) $(x,y) \rightarrow (-x,-y)$;
 $Q'(2, -2)$, $R'(3, 4)$,
 $S'(-1, 2)$

b) $(x,y) \rightarrow (y,-x)$;
 $Q'(2, 2)$, $R'(-4, 3)$,
 $S'(-2, -1)$

c) $(x,y) \rightarrow (-y,x)$;
 $Q'(-2, -2)$, $R'(4, -3)$,
 $S'(2, 1)$

d) $(x,y) \rightarrow (x,-y)$;
 $Q'(-2, -2)$, $R'(-3, 4)$,
 $S'(1, 2)$

18) Triangle QRS has vertices $Q(-2, 2)$, $R(-3, -4)$, and $S(1, -2)$. Write the coordinate notation for each rotation given. Then write the coordinates of $\triangle Q'R'S'$ after each rotation.

clockwise rotation of 270° about the origin

a) $(x,y) \rightarrow (y,-x)$;
 $Q'(2, 2)$, $R'(-4, 3)$,
 $S'(-2, -1)$

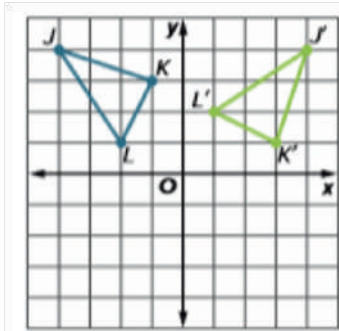
b) $(x,y) \rightarrow (-y,x)$;
 $Q'(-2, -2)$, $R'(4, -3)$,
 $S'(2, 1)$

c) $(x,y) \rightarrow (-x,-y)$;
 $Q'(2, -2)$, $R'(3, 4)$,
 $S'(-1, 2)$

d) $(x,y) \rightarrow (x,-y)$;
 $Q'(-2, -2)$, $R'(-3, 4)$,
 $S'(1, 2)$



19) Use coordinate notation to describe the rotation. Then determine the angle of rotation. Assume the rotation is clockwise about the origin.



a) $(x,y) \rightarrow (y,-x)$; 90°

b) $(x,y) \rightarrow (-y,x)$; 90°

c) $(x,y) \rightarrow (-x,-y)$; 180°

d) $(x,y) \rightarrow (y,x)$; 270°

20) Point Z is located at $Z(1, -2)$. Write the coordinates of the point after a **clockwise rotation of 90° about the origin.**

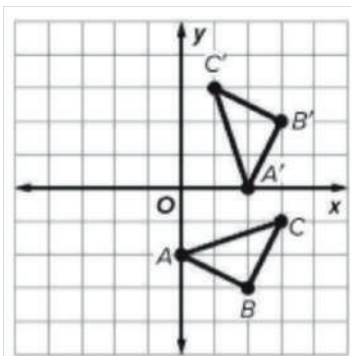
a) $(-2, -1)$

b) $(2, 1)$

c) $(-1, 2)$

d) $(2, -1)$

21) Which of the following statements describes the rotation shown? **Assume the rotation is clockwise about the origin.**



a) 90° clockwise rotation

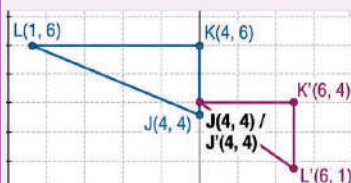
b) 180° clockwise rotation

c) 270° clockwise rotation

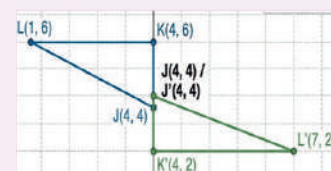
d) 360° clockwise rotation

22) Triangle JKL with vertices $J(4, 4)$, $K(4, 6)$, and $L(1, 6)$. Stacey wants to rotate the triangle counterclockwise 180° about vertex J. Graph the figure and its image on the coordinate plane.

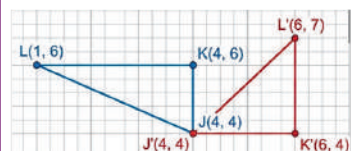
a)



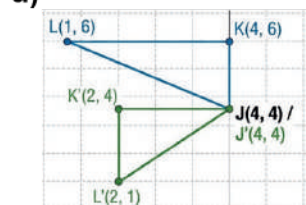
b)



c)



d)



6

Describe dilations using coordinate notation as well as graph dilations on the coordinate plane using coordinate notation.

1-6

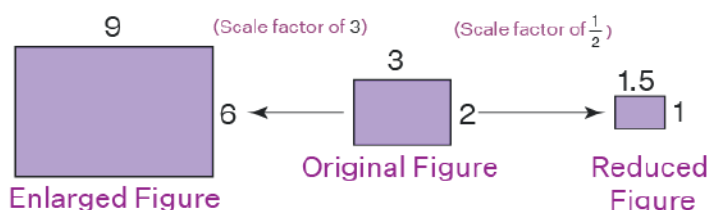
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M8L4: Dilations

A **dilation** is a transformation that **enlarges or reduces** a figure **by a scale factor (K)** relative to a center point.

You can use the following coordinate notation to describe the dilation:
 $(x, y) \rightarrow (kx, ky)$
 Multiply both x and y by the scale factor.

$$K = \frac{\text{LENGTH OF IMAGE}}{\text{LENGTH OF PRE-IMAGE}}$$



If the scale factor (K) is > 1 , the figure gets bigger

If the scale factor (K) is < 1 , the figure gets smaller

23) Trapezoid $RAIN$ has vertices $R(-2, 1)$, $A(1, 1)$, $I(0, -1)$, and $N(-1, -1)$. Write the coordinates of the image after a **dilation with a scale factor of 2**.

- | | |
|--|--|
| a) $R'(-4, 2)$, $A'(2, 2)$, $I'(0, -2)$, $N'(-2, -2)$ | b) $R'(-1, 0.5)$, $A'(0.5, 0.5)$, $I'(0, -0.5)$, $N'(-0.5, -0.5)$ |
| c) $R'(-4, 1)$, $A'(2, 1)$, $I'(0, -2)$, $N'(-2, -1)$ | d) $R'(-4, 1)$, $A'(2, 1)$, $I'(0, -2)$, $N'(-2, -1)$ |

24) Triangle ABC has vertices $A(2, 1)$, $B(3, 0)$, and $C(1, -2)$. Write the coordinates of the image after a **dilation with a scale factor of 3**.

- | | |
|--|---|
| a) $A'(6, 3)$, $B'(9, 0)$, $C'(3, -6)$ | b) $A'(5, 2)$, $B'(6, 0)$, $C'(2, -4)$ |
| c) $A'(6, 1)$, $B'(9, 0)$, $C'(3, -2)$ | d) $A'(-6, -3)$, $B'(-9, 0)$, $C'(-3, 6)$ |

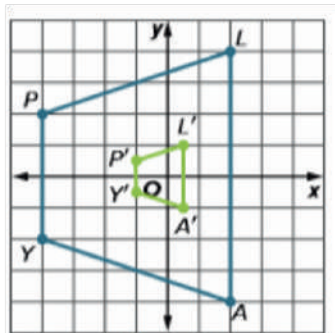
25) Triangle JKL has vertices $J(-4, -1)$, $K(0, 4)$, and $L(-4, -2)$. Write the coordinates of the image after a **dilation with a scale factor of 0.5**.

- | | |
|---|--|
| a) $J'(-8, -2)$, $K'(0, 8)$, $L'(-8, -4)$ | b) $J'(-8, -2)$, $K'(0, 8)$, $L'(-8, -4)$ |
| c) $J'(-2, -1)$, $K'(0, 2)$, $L'(-2, -2)$ | d) $J'(-2, 0.5)$, $K'(0, 2)$, $L'(-2, -1)$ |

26) Rectangle $PQRS$ has vertices $P(-3, 3)$, $Q(6, 3)$, $R(6, -3)$, and $S(-3, -3)$. Write the coordinates of the image after a **dilation with a scale factor of $1/3$** .

- | | |
|--|--|
| a) $P'(-1, 1)$, $Q'(2, 1)$, $R'(2, -1)$, $S'(-1, -1)$ | b) $P'(-9, 9)$, $Q'(18, 9)$, $R'(18, -9)$, $S'(-9, -9)$ |
| c) $P'(-1, 3)$, $Q'(2, 3)$, $R'(2, -3)$, $S'(-1, -3)$ | d) $P'(1, -1)$, $Q'(-2, -1)$, $R'(-2, 1)$, $S'(1, 1)$ |

27) Use coordinate notation to describe the dilation.



- | | |
|--------------------------------------|--------------------------------------|
| a) $(x, y) \rightarrow (4x, 4y)$ | b) $(x, y) \rightarrow (1/2x, 1/2y)$ |
| c) $(x, y) \rightarrow (1/4x, 1/4y)$ | d) $(x, y) \rightarrow (1/3x, 1/3y)$ |

28) Keisha used a photo that measured 4 inches by 6 inches to make a copy that measured 8 inches by 12 inches. What is the scale factor of the dilation?

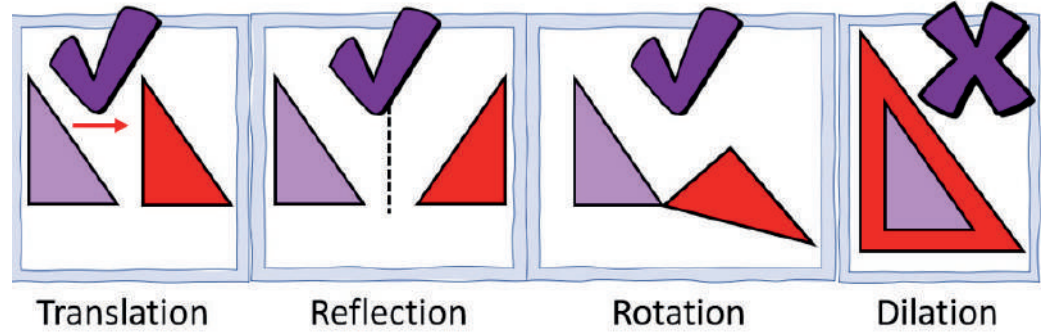
- | | |
|--------|------|
| a) 0.5 | b) 2 |
| c) 3 | d) 4 |

7	Use a composition of transformations, as well as the orientation of figures, to determine if two figures are congruent.	1-5	491
		6	492

M9L1: Congruence and Transformations

Congruence Transformation :

A transformation that keeps the figure the **SAME shape and Size**.



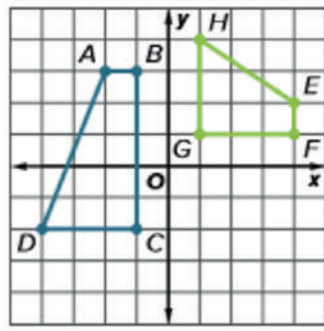
Translation

Reflection

Rotation

Dilation

29) Determine if each pair of figures are congruent. If so, describe a sequence of transformations that maps one figure onto the other figure.



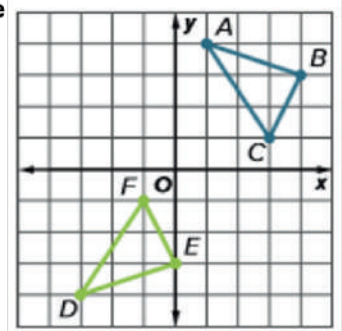
a) Yes; translate only.

b) Yes; rotate 90° .

c) Yes; reflect across the y-axis.

d) No; no sequence of transformations maps one figure onto the other.

30) Determine if each pair of figures are congruent. If so, describe a sequence of transformations that maps one figure onto the other figure.



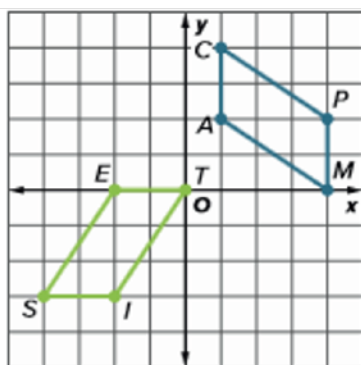
a) Yes; reflect across the x-axis, then translate 4 units left.

b) Yes; reflect across the y-axis, then translate 4 units left.

c) Yes; rotate 90° , then translate 4 units down.

d) No; the triangles are not congruent.

31) Parallelogram CAMP is congruent to parallelogram SITE. Determine which sequence of transformations maps parallelogram CAMP onto parallelogram SITE.



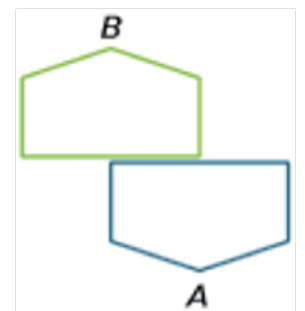
a) Rotate 90° clockwise about the origin, then translate 4 units down.

b) Rotate 90° counterclockwise about the origin, then translate 4 units down.

c) Reflect across the x-axis, then translate 4 units left.

d) Translate 4 units down only.

32) What transformations could be used to create the logo if Figure A is the preimage and Figure B is the image? Are the two figures congruent?



a) A reflection followed by a translation; the figures are congruent.

b) A rotation followed by a translation; the figures are congruent.

c) A translation only; the figures are not congruent.

d) A dilation followed by a translation; the figures are not congruent.

33) What transformations could be used to create the design if Figure A is the preimage and Figure B is the image? Are the two figures congruent?



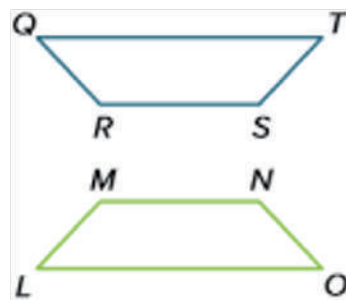
a) A rotation followed by a translation; the figures are congruent.

b) A translation only; the figures are not congruent.

c) A reflection followed by a translation; the figures are congruent.

d) A dilation followed by a translation; the figures are not congruent.

34) Trapezoid QRST and its image are shown. What transformation maps trapezoid QRST onto trapezoid LMNO?



a) dilation about vertex R

b) vertical translation

c) reflection across a horizontal line

d) rotation about vertex Q

8	Use the properties of rotations, reflections, and translations to identify congruent parts of congruent figures and to find missing measures.	1-4	499
---	---	-----	-----

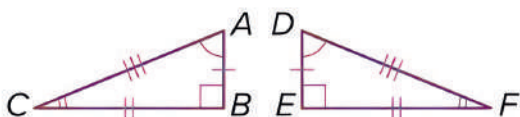
M9L2: Congruence and Corresponding Parts



Words

If two figures are congruent, their corresponding sides are congruent and their corresponding angles are congruent.

Model



Symbols

$$\triangle ABC \cong \triangle DEF$$

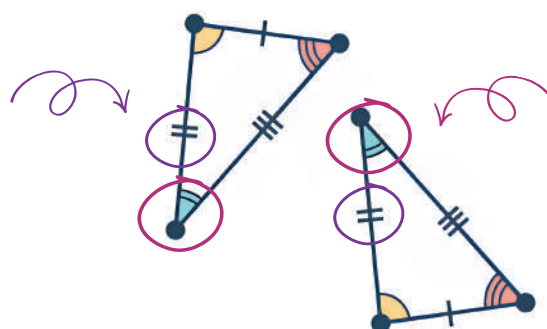
Congruent angles:

$$\angle A \cong \angle D; \angle B \cong \angle E; \angle C \cong \angle F$$

Congruent sides:

$$\overline{AB} \cong \overline{DE}; \overline{BC} \cong \overline{EF}; \overline{CA} \cong \overline{FD}$$

Sides with the same number of **tick marks** are congruent



Angles with the same number of **arc marks** are congruent

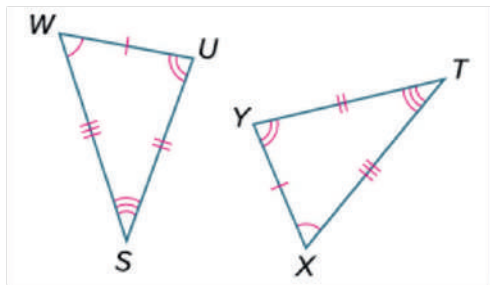
Remember

$$\triangle ABC \cong \triangle DEF$$

1 2 3

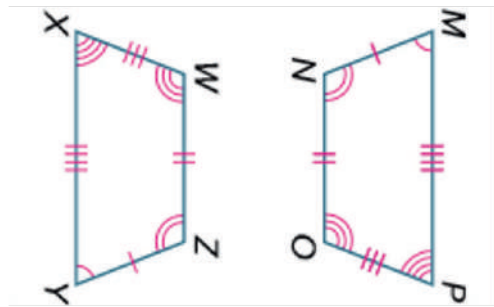
Order is Important for your Congruence Statement

35) Write congruence statements comparing the **corresponding sides** in this set of congruent figures.



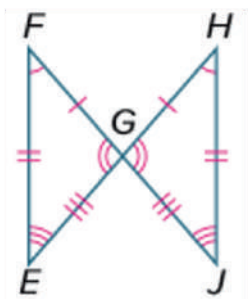
- | | |
|--|--|
| a) $WU \cong XY$,
$US \cong YT, SW \cong TX$ | b) $WU \cong YT$,
$US \cong XY, SW \cong TX$ |
| c) $WU \cong TX, US \cong YT$,
$SW \cong XY$ | d) $WU \cong XY, US \cong TX$,
$SW \cong YT$ |

36) Write congruence statements comparing the **corresponding angles** in this set of congruent figures.



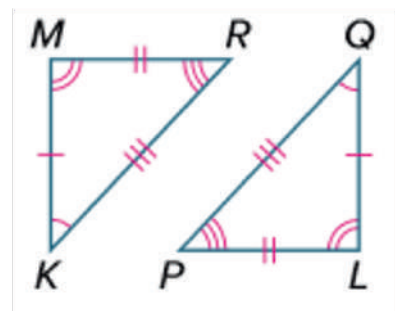
- | | |
|---|---|
| a) $\angle X \cong \angle N, \angle W \cong \angle M$,
$\angle Z \cong \angle O, \angle Y \cong \angle P$ | b) $\angle X \cong \angle P, \angle W \cong \angle O$,
$\angle Z \cong \angle N, \angle Y \cong \angle M$ |
| c) $\angle X \cong \angle O, \angle W \cong \angle P$,
$\angle Z \cong \angle M, \angle Y \cong \angle N$ | d) $\angle X \cong \angle M, \angle W \cong \angle N$,
$\angle Z \cong \angle P, \angle Y \cong \angle O$ |

37) Write congruence statements comparing the **corresponding sides** in this set of congruent figures.



- | | |
|--|--|
| a) $FG \cong HG, FE \cong HJ$,
$EG \cong JG$ | b) $FG \cong JG, FE \cong HG$,
$EG \cong HJ$ |
| c) $FG \cong HJ, FE \cong JG$,
$EG \cong HG$ | d) $FG \cong HG, FE \cong JG$,
$EG \cong HJ$ |

38) Write congruence statements comparing the **corresponding angles** in this set of congruent figures.



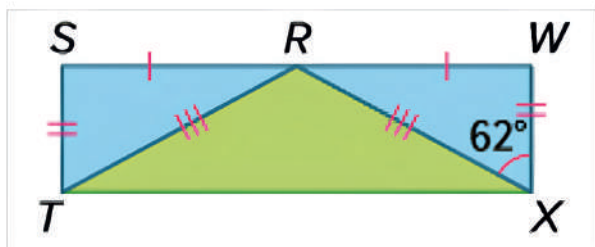
- | | |
|--|--|
| a) $\angle K \cong \angle P, \angle M \cong \angle Q$,
$\angle R \cong \angle L$ | b) $\angle K \cong \angle Q, \angle M \cong \angle L$,
$\angle R \cong \angle P$ |
| c) $\angle K \cong \angle L, \angle M \cong \angle P$,
$\angle R \cong \angle Q$ | d) $\angle K \cong \angle R, \angle M \cong \angle Q$,
$\angle P \cong \angle L$ |

9 Use the properties of rotations, reflections, and translations to identify congruent parts of congruent figures and to find missing measures.

5-6

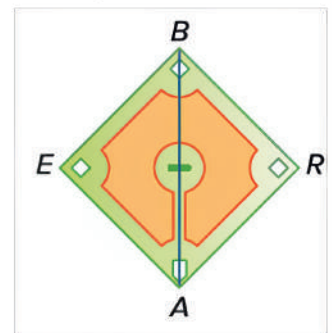
499

39) In the quilt design shown, $\triangle RST \cong \triangle RWX$. If $m\angle WXR = 62^\circ$, what is the measure of $\angle STR$?



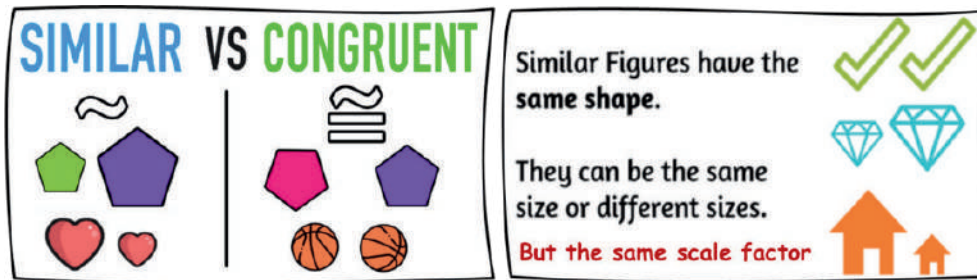
- | | |
|----------------|----------------|
| a) 28° | b) 62° |
| c) 118° | d) 124° |

40) In the baseball diamond shown, $\triangle BEA \cong \triangle ARB$. The length of BE is 90 feet. What is the length of AR?



- | | |
|-----------|-----------|
| a) 45 ft | b) 90 ft |
| c) 180 ft | d) 360 ft |

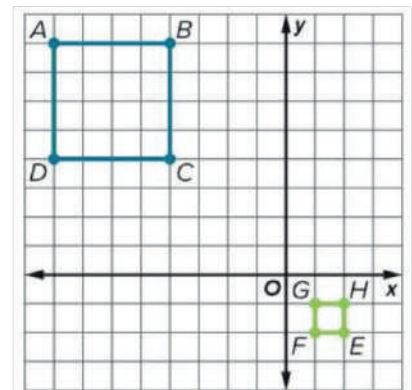
M9L3: Similarity and Transformations



Dilation is the main transformation that creates similar shapes because it changes the size without changing the shape, and all **corresponding sides have the same scale factor**

$$k = \frac{\text{LENGTH OF IMAGE}}{\text{LENGTH OF PRE-IMAGE}}$$

41) Square ABCD is similar to square EFGH. Determine which sequence of transformations maps square ABCD onto square EFGH.



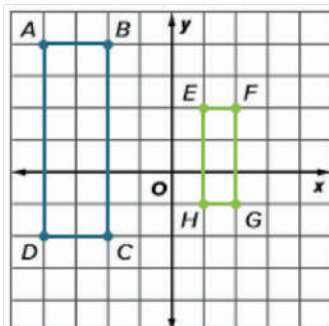
a) Dilate by $\frac{1}{4}$ about the origin, then rotate 90° clockwise.

b) Dilate by $\frac{1}{4}$ about the origin, then translate right 4 units.

c) Dilate by $\frac{1}{4}$ about the origin, then rotate 180° .

d) Dilate by $\frac{1}{2}$ about the origin, then rotate 180° .

42) Determine if this pair of figures is similar. If so, describe a sequence of transformations that maps one figure onto the other figure.



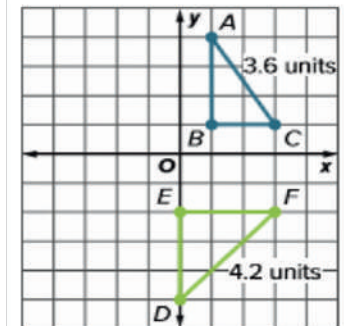
a) Not similar

b) Dilate by 0.5 about the origin, then translate 3 units right.

c) Dilate by 2 about the origin, then translate 3 units right.

d) Reflect across the y-axis, then translate 3 units right.

43) Determine if this pair of figures is similar. If so, describe a sequence of transformations that maps one figure onto the other figure.



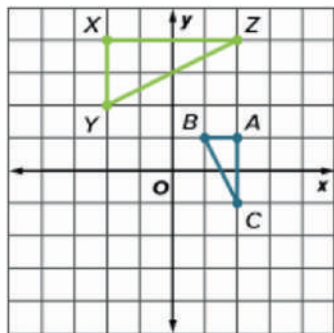
a) Yes; dilate by $\frac{4.2}{3.6}$.

b) Yes; rotate 180° .

c) No; side lengths are not proportional.

d) No; corresponding angles are not congruent.

44) Triangle ABC is similar to $\triangle XYZ$. Determine which sequence of transformations maps $\triangle ABC$ onto $\triangle XYZ$.



a) Dilate by 2, then rotate 90° counterclockwise.

b) Dilate by 2, then rotate 90° clockwise.

c) Dilate by $\frac{1}{2}$, then rotate 90° counterclockwise.

d) Reflect across the y-axis, then dilate by 2.

45) Jenna enlarges a 2 in. $\times$ 2.5 in. picture by a scale factor of 4, then enlarges it again by a scale factor of 12. What are the final dimensions of the mural, and is it similar to the original picture?

a) 96 in. $\times$ 120 in.; Yes

b) 48 in. $\times$ 60 in.; Yes

c) 96 in. $\times$ 120 in.; No

d) 24 in. $\times$ 30 in.; Yes

46) Which sequence of transformations can be used to show that two figures are similar but not necessarily congruent?

a) dilation and rotation

b) translation and reflection

c) reflection and rotation

d) rotation and translation

12 Use properties of similar figures to determine similarity and to find missing measures.

1-7

521

M9L4: Similarity and Corresponding Parts

Words

If two polygons are similar, then their corresponding angles are congruent and the lengths of the corresponding sides are proportional.

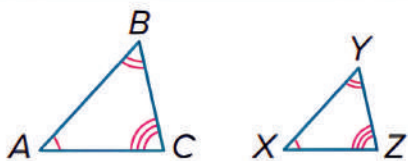
Symbols

$$\triangle ABC \sim \triangle XYZ$$

Congruent angles:

$$\angle A \cong \angle X; \angle B \cong \angle Y; \angle C \cong \angle Z;$$

Model



The corresponding angles of similar figures are the same.

Corresponding sides:

$$\frac{AB}{XY} = \frac{BC}{YZ} = \frac{AC}{XZ}$$



Similar Shapes

Same shape but not necessarily the same size

Corresponding sides are proportional

Corresponding angles are equal

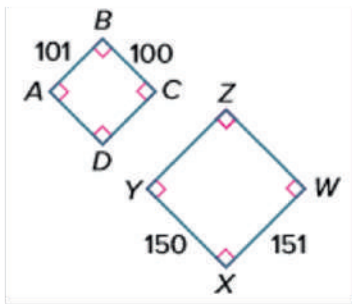
Congruent Shapes

Same shape and same size

Corresponding sides are equal

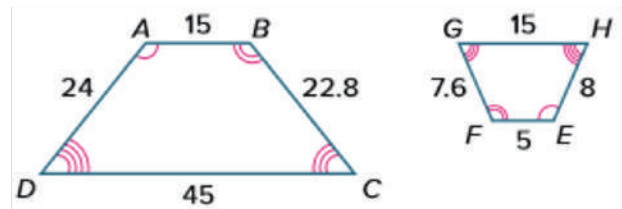
Corresponding angles are equal

47) Determine whether this pair of polygons is similar. If so, write a similarity statement.



- | | |
|---------------------------------|---------------------------------|
| a) Similar;
$ABCD \sim YZWX$ | b) Similar;
$ABCD \sim XYWZ$ |
| c) Similar;
$ABCD \sim XWYZ$ | d) Not similar. |

48) Determine whether this pair of polygons is similar. If so, write a similarity statement.

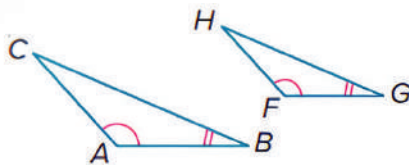


- | | |
|---------------------------------|---------------------------------|
| a) Similar;
$ABCD \sim EFHG$ | b) Similar;
$ABCD \sim EFGH$ |
| c) Similar;
$ABCD \sim FEHG$ | d) Not similar. |

Words

The **Angle-Angle Similarity** states that if two angles of one triangle are congruent to two angles of another triangle, then the triangles are similar.

Model



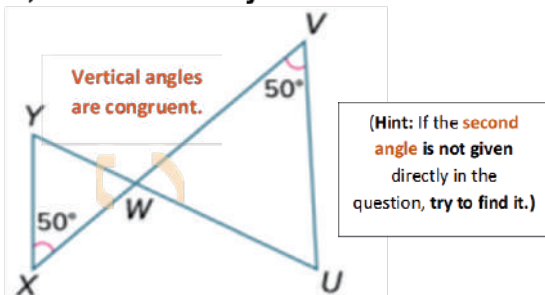
Symbols

If $\angle A \cong \angle F$ and $\angle B \cong \angle G$, then
 $\triangle ABC \sim \triangle FGH$.

Use the AA Similarity Theorem when:

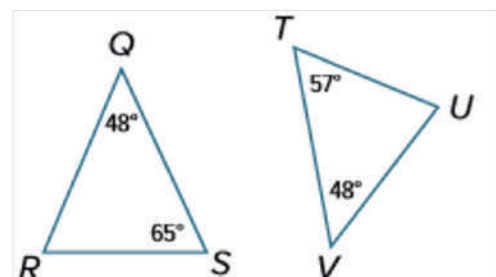
- You are given or can prove that two angles of one triangle match two angles of another.
- You're trying to prove similarity without needing to measure or compare side lengths.

49) Determine whether this pair of polygons is similar. If so, write a similarity statement.



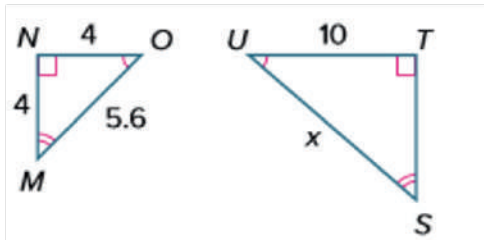
- | | |
|---|---|
| a) Similar;
$\triangle YWX \sim \triangle UVW$ | b) Similar;
$\triangle YWX \sim \triangle UUV$ |
| c) Similar;
$\triangle XYW \sim \triangle VUW$ | d) Not similar |

50) Determine whether this pair of polygons is similar. If so, write a similarity statement.



- | | |
|---|---|
| a) Similar;
$\triangle RQS \sim \triangle TVU$ | b) Similar;
$\triangle RQS \sim \triangle TUV$ |
| c) Similar;
$\triangle RQS \sim \triangle UVT$ | d) Not similar |

51) This pair of polygons is similar. Find each missing side measure.



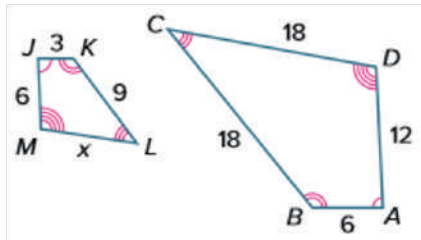
a) 11.2 units

b) 12 units

c) 14 units

d) 16 units

52) This pair of polygons is similar. Find each missing side measure.



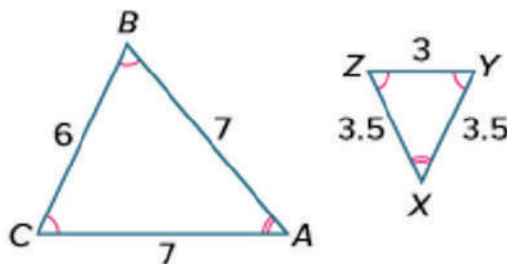
a) 6 units

b) 8 units

c) 9 units

d) 12 units

53) Which of the following is true about $\triangle ABC$ and $\triangle XYZ$?



a) The triangles are not similar.

b) The triangles are congruent.

c) $\triangle ABC \sim \triangle XYZ$

d) $\triangle ABC \cong \triangle XYZ$

13

Use properties of similar triangles to solve indirect measurement problems.

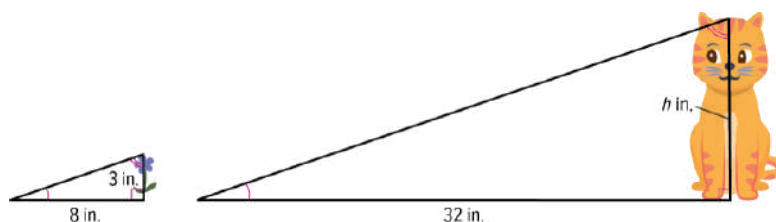
1-6

527

M9L5: Indirect Measurement

Match sides → Write a proportion → Cross multiply → Solve for the missing side

To find the missing side, follow these steps:



1) Write a proportion using matching sides:

$$\frac{\text{Missing side}}{\text{Its corresponding side}} = \frac{\text{Known side}}{\text{Its corresponding side}}$$

$$\frac{h}{3} = \frac{32}{8}$$

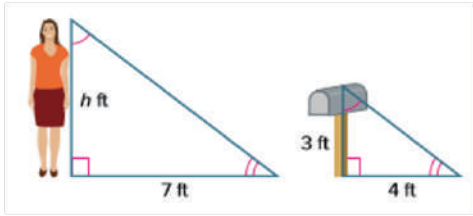
2) Cross multiply:

$$\frac{h}{3} \neq \frac{32}{8}$$

3) Solve for the missing side:

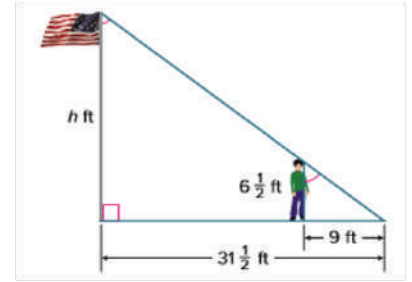
$$8h = 3(32) \rightarrow \frac{8h}{8} = \frac{96}{8} \rightarrow h = 12$$

54) Becky casts a 7-foot shadow at the same time a nearby mailbox casts a 4-foot shadow. If the mailbox is 3 feet tall, how tall is Becky?



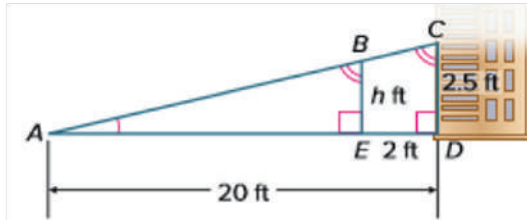
- | | |
|------------|------------|
| a) 4.50 ft | b) 5.25 ft |
| c) 6 ft | d) 7 ft |

55) At the same time a 6.5-foot-tall teacher casts a 9-foot shadow, a nearby flagpole casts a 31.5-foot shadow. How tall is the flagpole?



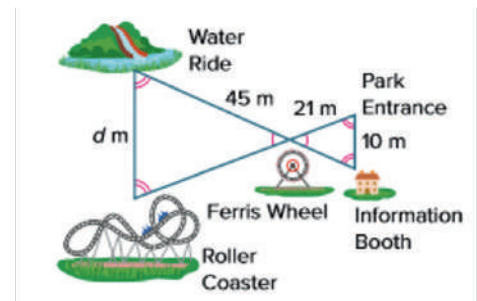
- | | |
|-------------|-------------|
| a) 20.25 ft | b) 21.75 ft |
| c) 22.75 ft | d) 24.50 ft |

56) In the figure, $\triangle ABE$ is similar to $\triangle ACD$. What is the height h of the ramp when it is 2 feet from the building?



- | | |
|------------|------------|
| a) 1.50 ft | b) 2 ft |
| c) 2.25 ft | d) 2.50 ft |

57) In the figure, the triangles are similar. What is the distance d from the water ride to the roller coaster?



- | | |
|-----------|-----------|
| a) 18.6 m | b) 21.4 m |
| c) 23.8 m | d) 25.7 m |

58) If a 25-foot-tall house casts a 75-foot shadow at the same time that a streetlight casts a 60-foot shadow, how tall is the streetlight?

- | | |
|------------|----------|
| a) 18 ft | b) 20 ft |
| c) 22.5 ft | d) 25 ft |

59) A child and a statue casts the shadow lengths shown at the same time. Complete the table to find the height, in feet, of the statue.

Object	Height of Object (ft)	Shadow Length (ft)
Emma	3.5	5.25
Statue	?	57

- | | |
|------------|----------|
| a) 36 ft | b) 38 ft |
| c) 40.5 ft | d) 42 ft |

34	Use the formula for the volume of a cylinder to find the volume of a cylinder given its diameter or radius and the height.	1-4	541
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M10L1: Volume of Cylinders

Words

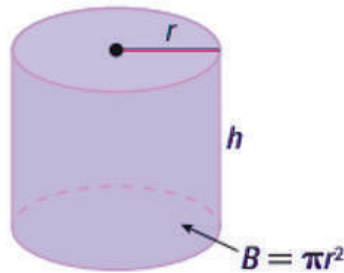
The volume V of a cylinder with radius r is the area of the base B times the height h .

Symbols

$V = Bh$, where $B = \pi r^2$ or

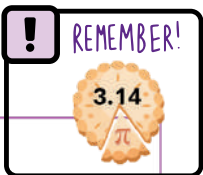
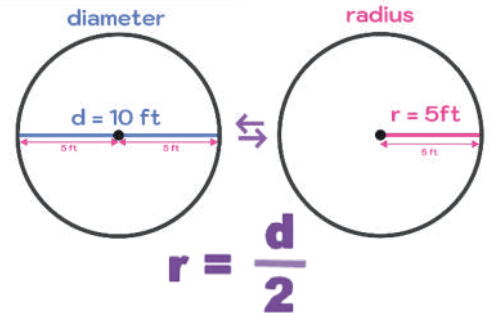
$V = \pi r^2 h$

Model

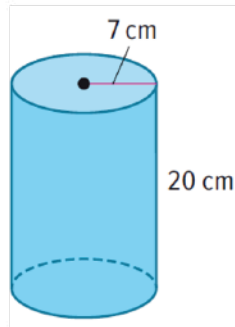


IMPORTANT!

Diameter vs. Radius

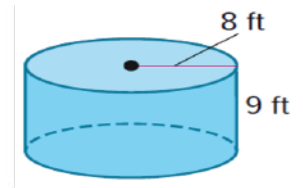


60) Find the volume of the cylinder.



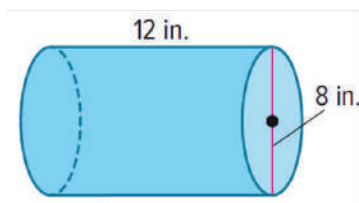
- | | |
|---------------------------|---------------------------|
| a) $2,156.4 \text{ cm}^3$ | b) $2,879.3 \text{ cm}^3$ |
| c) $3,078.8 \text{ cm}^3$ | d) $3,245.7 \text{ cm}^3$ |

61) Find the volume of the cylinder.



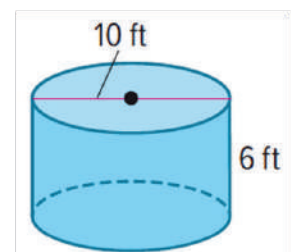
- | | |
|---------------------------|---------------------------|
| a) $1,608.5 \text{ ft}^3$ | b) $1,809.6 \text{ ft}^3$ |
| c) $2,010.6 \text{ ft}^3$ | d) $2,261.9 \text{ ft}^3$ |

62) Find the volume of the cylinder. Express your answer in terms of π



- | | |
|-------------|-------------|
| a) 96π | b) 128π |
| c) 192π | d) 384π |

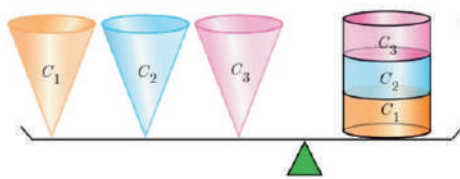
63) Find the volume of the cylinder. Express your answer in terms of π



- | | |
|-------------|-------------|
| a) 120π | b) 150π |
| c) 180π | d) 300π |

M10L2: Volume of Cones

Volume Comparison: Cone & Cylinder

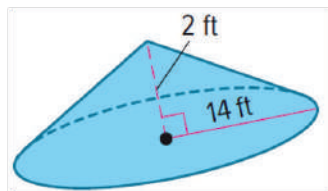


$$3 \times V_{\text{Cone}} = 1 V_{\text{Cylinder}}$$

$$V_{\text{Cone}} = \frac{1}{3} V_{\text{Cylinder}}$$

$$V_{\text{Cone}} = \frac{1}{3} \pi r^2 h$$

64) Find the volume of this cone. Express your answer in terms of π .



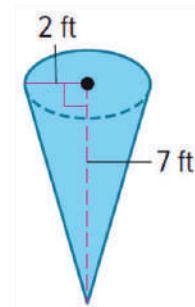
a) $98\pi \text{ ft}^3$

b) $130\frac{2}{3}\pi \text{ ft}^3$

c) $196\pi \text{ ft}^3$

d) $392\pi \text{ ft}^3$

65) Find the volume of this cone. Express your answer in terms of π .



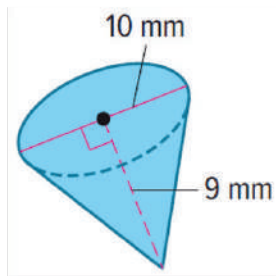
a) $9\frac{1}{3}\pi \text{ ft}^3$

b) $14\pi \text{ ft}^3$

c) $28\pi \text{ ft}^3$

d) $56\pi \text{ ft}^3$

66) Find the volume of this cone. Express your answer in terms of π .



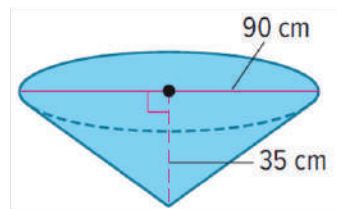
a) $50\pi \text{ mm}^3$

b) $75\pi \text{ mm}^3$

c) $100\pi \text{ mm}^3$

d) $150\pi \text{ mm}^3$

67) Find the volume of this cone. Express your answer in terms of π .



a) $15,750\pi \text{ cm}^3$

b) $18,900\pi \text{ cm}^3$

c) $23,625\pi \text{ cm}^3$

d) $31,500\pi \text{ cm}^3$

68) A funnel is in the shape of a cone. The radius is 2 inches and the height is 4.6 inches. What is the volume of the funnel? Round to the nearest tenth.

a) 16.8 in^3

b) 19.3 in^3

c) 21.7 in^3

d) 24.1 in^3

69) Marta bought a paperweight in the shape of a cone. The radius was 10 centimeters and the height 9 centimeters. Find the volume. Round to the nearest tenth.

a) 848.2 cm^3

b) 900 cm^3

c) 942.5 cm^3

d) $1,130.9 \text{ cm}^3$

70) A lampshade is in the shape of a cone. The diameter is 5 inches and the height is 6.5 inches. Find the volume. Round to the nearest tenth.

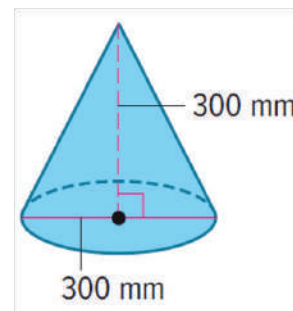
a) 34.1 in^3

b) 42.5 in^3

c) 49.8 in^3

d) 63.8 in^3

71) What is the volume of the cone shown? (Use 3.14 for π .)



a) $7,068,583.5 \text{ mm}^3$

b) $14,137,166.9 \text{ mm}^3$

c) $14,137,166.9 \text{ mm}^3$

d) 229.33304 mm^3

16 Use the formula for the volume of a sphere or hemisphere to find the volume of the figure given its radius or diameter.

5-8

557

M10L3: Volume of Spheres

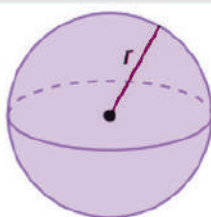
Words

The volume V of a sphere is four-thirds the product of π and the cube of the radius r .

Symbols

$$V = \frac{4}{3}\pi r^3$$

Model



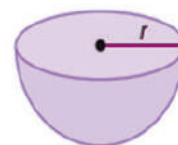
Words

The volume V of a hemisphere is two-thirds the product of π and the cube of the radius r .

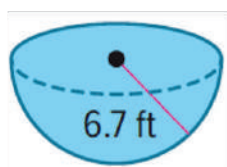
Symbols

$$V = \frac{2}{3}\pi r^3$$

Model



72) Find the volume of this hemisphere. Round to the nearest tenth.



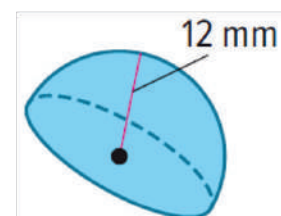
a) 529.9 ft^3

b) 729.9 ft^3

c) 629.9 ft^3

d) 829.9 ft^3

73) Find the volume of this hemisphere. Round to the nearest tenth.



a) $2,412.7 \text{ mm}^3$

b) $3,619.1 \text{ mm}^3$

c) $4,825.5 \text{ mm}^3$

d) $7,238.2 \text{ mm}^3$

74) Olga is using spherical beads to create a border on a picture frame. Each bead has a diameter of 1.5 millimeters. Find the volume of each bead. Round to the nearest tenth.

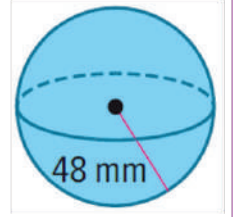
a) 1.2 mm^3

b) 1.5 mm^3

c) 1.8 mm^3

d) 2.1 mm^3

75) What is the volume of the sphere shown? (Use 3.14 for π .)



a) $231,505.92 \text{ mm}^3$

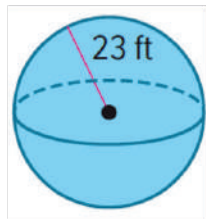
b) $463,011.84 \text{ mm}^3$

c) $694,517.76 \text{ mm}^3$

d) $926,023.68 \text{ mm}^3$

17	Use the formula for the volume of a sphere to find the volume of the figure given its radius or diameter.	1-4	557
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76) Find the volume of this sphere. Express your answer in terms of π .



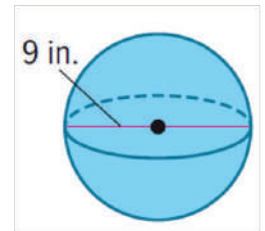
a) $8,111\frac{1}{3}\pi \text{ ft}^3$

b) $12,167\pi \text{ ft}^3$

c) $16,222\frac{2}{3}\pi \text{ ft}^3$

d) $32,445\frac{1}{3}\pi \text{ ft}^3$

77) Find the volume of this sphere. Express your answer in terms of π .



a) $81\pi \text{ in}^3$

b) $121.5\pi \text{ in}^3$

c) $243\pi \text{ in}^3$

d) $364.5\pi \text{ in}^3$

78) A necklace has a single spherical pearl with a radius of 2.1 millimeters. What is the volume of the pearl? Round to the nearest tenth.

a) 28.6 mm^3

b) 38.8 mm^3

c) 46.2 mm^3

d) 58.4 mm^3

79) The radius of a mini-basketball is 4 inches. A pump can inflate the ball at a rate of 6 cubic inches per second. How long will it take to inflate the ball? Round to the nearest tenth.

a) 35.2 seconds

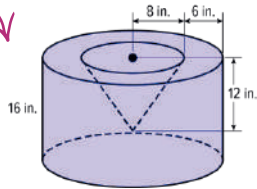
b) 40.8 seconds

c) 44.7 seconds

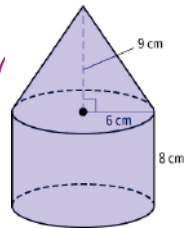
d) 52.3 seconds

M10L5: Volume of Composite Solids

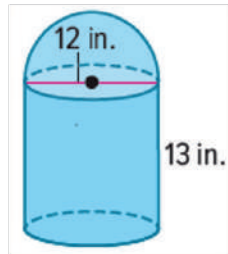
If one figure is **inside the other** (a part is hollowed out or removed), **subtract the volume** of the inner figure from the outer figure to find the volume of the solid.



If the two figures are **composite** and **joined externally** (stacked or added together to form a solid), **add the volume** of each figure to find the total volume of the solid.



80) Find the volume of this solid. Round to the nearest tenth.



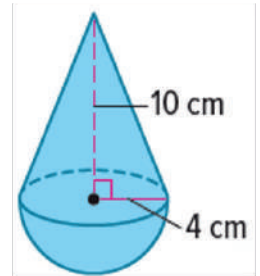
a) 1,256.6 in³

b) 1,922.7 in³

c) 2,145.8 in³

d) 2,512.4 in³

81) Find the volume of this solid. Round to the nearest tenth.



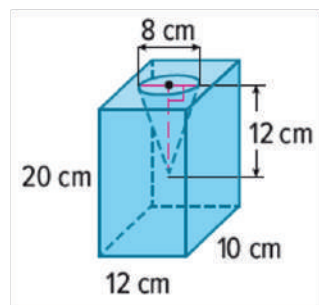
a) 201.1 cm³

b) 251.3 cm³

c) 301.6 cm³

d) 402.1 cm³

82) Find the volume of the flower vase. Round to the nearest tenth.



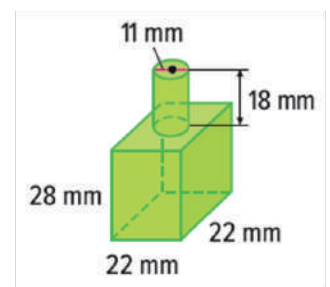
a) 1,998.9 cm³

b) 2,098.9 cm³

c) 2,198.9 cm³

d) 2,298.9 cm³

83) Find the volume of the nail polish bottle. Round to the nearest tenth.



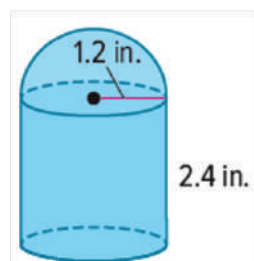
a) 14,262.6 mm³

b) 15,262.6 mm³

c) 16,262.6 mm³

d) 17,262.6 mm³

84) Find the volume of the saltshaker. Round to the nearest tenth.



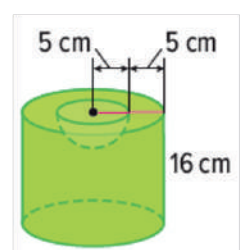
a) 12.8 in³

b) 14.5 in³

c) 16.2 in³

d) 18.9 in³

85) Find the volume of the saltshaker. Round to the nearest tenth.



a) 3,764.7 cm³

b) 4,264.7 cm³

c) 4,764.7 cm³

d) 5,264.7 cm³

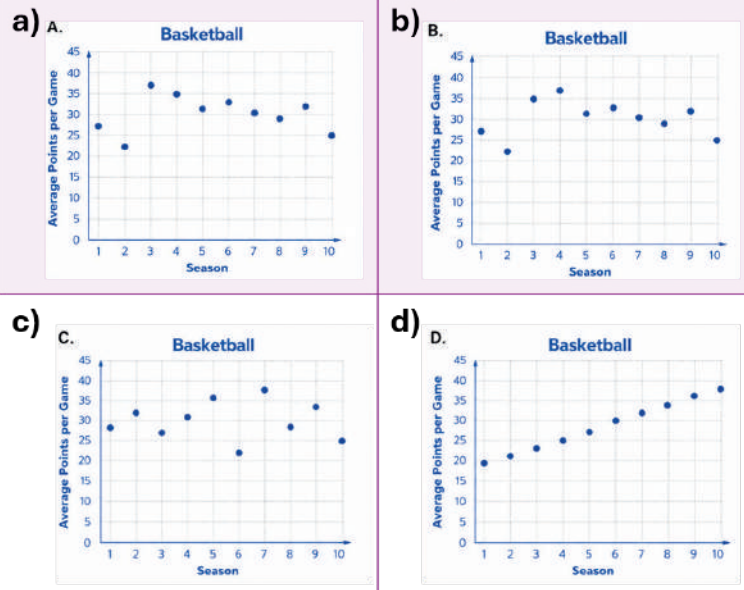
M11L1: Scatter Plots

To Construct a Scatter Plot:

- 1) Label each axis with what it represents (e.g., x = season, y = Average point).
- 2) Choose a consistent scale for each axis. If the numbers are not in order, identify the lowest and highest values for each axis to determine an appropriate range.
- 3) Plot each data pair by placing a dot at the corresponding x and y values.

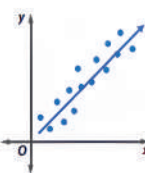
86) Construct a scatter plot of the data.

Season	1	2	3	4	5
Average Points Per Game	28.2	22.7	37.1	35.0	32.5
Season	6	7	8	9	10
Average Points Per Game	33.6	31.5	30.1	32.6	26.9



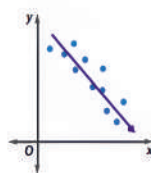
Variable Association

Positive Association



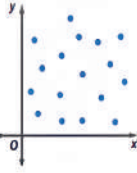
As x increases, y increases.

Negative Association



As x increases, y decreases.

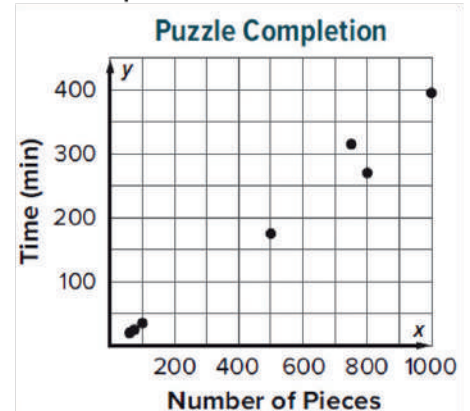
No Association



No obvious pattern.

Types of Associations

87) Interpret the scatter plot.



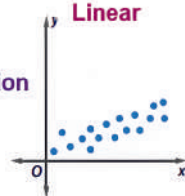
a) Negative linear association; 1 cluster; no outliers

b) Positive nonlinear association; 1 cluster; 1 outlier

c) Positive linear association; 1 cluster; no outliers

d) Negative nonlinear association; no clusters; 2 outliers

Linear Association



The data points lie close to a line.

Nonlinear



The data points lie in the shape of a curve.

Other patterns

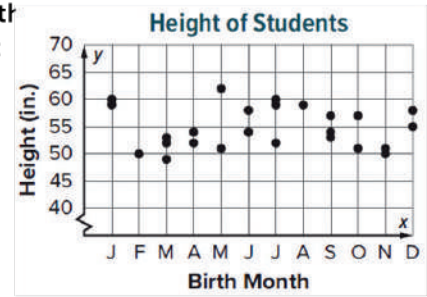
outlier

An outlier is an observation that lies outside the overall pattern.

cluster or a collection of points that are close together

cluster

88) The scatter plot shows the relationship between the birth month of every student in Mari's class and their height. Which is the best interpretation of the data?



a) There is a positive, linear association. There are no clusters or outliers.

b) The scatter plot shows no association.

c) There is a negative, linear association. There are no clusters or outliers.

d) There is a positive, linear association.

21 Use a scatter plot to draw a line that closely fits the data and predict values that are not present in the original data set.

1-4

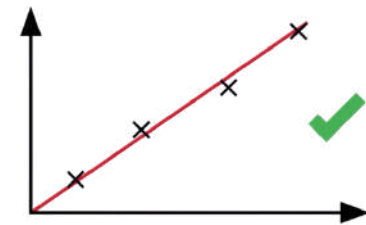
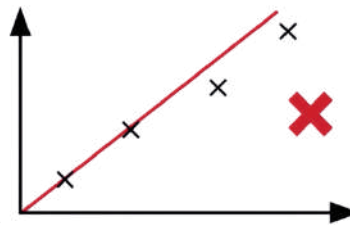
597

M11L2: Draw Lines of Fit

REMEMBER

To draw a line of fit, make sure it:

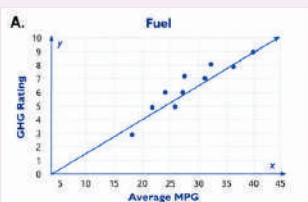
- Follows the overall trend of the data.
- Has about the same number of points above and below the line.
- Passes through the middle of the data cluster (not necessarily through any specific point).



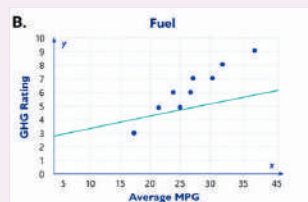
89) Which scatter plot shows the line of best fit for the data?

Average MPG	22	25	31	28	16	26
GHG Rating	5	6	7	7	3	6
Average MPG	35	41	24	32	30	23
GHG Rating	8	9	5	8	7	5

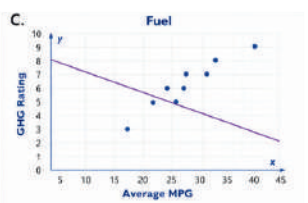
a)



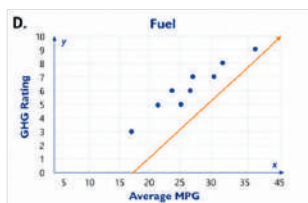
b)



c)



d)



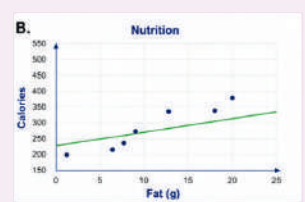
90) Which scatter plot shows the line of best fit for the data?

Fat (f)	1	6	7	8	12	18	20
Calories	200	222	239	274	338	339	385

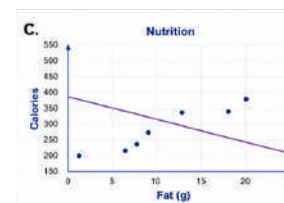
a)



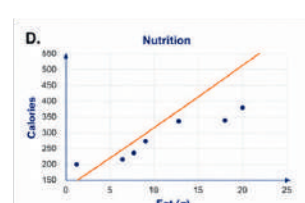
b)



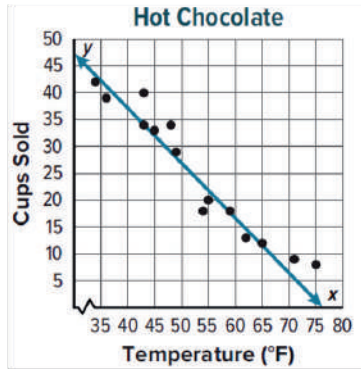
c)



d)



91) Use the line of fit to make a conjecture about the number of cups of hot chocolate sold if the average temperature is 50°F.



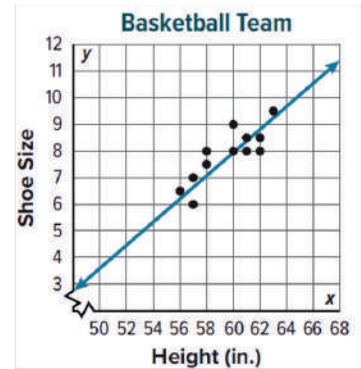
a) 18 cups

b) 22 cups

c) 27 cups

d) 35 cups

92) Use the line of fit to make a conjecture about the shoe size of a boy on the team that is 59 inches tall.



a) 6.5

b) 7.0

c) 8.5

d) 7.5

22

Find the equation for a line that closely fits the data and use it to predict values that are not present in the original data set.

1-4

607

M11L3: Equations for Lines of Fit



Step 1 : Find the slope

$$\text{Slope} = \frac{y_2 - y_1}{x_2 - x_1}$$

Step 2: Find y-intercept

Where the graph crosses the y-axis

Step 3: Write the equation

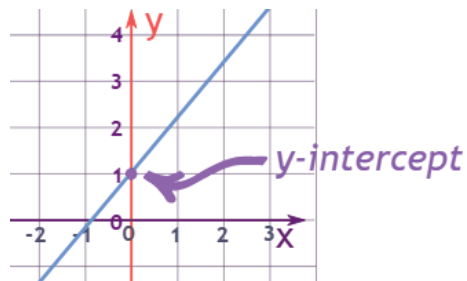
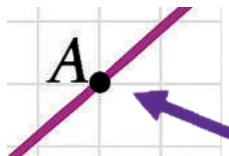
$$y = mx + b$$

Slope Intercept Form

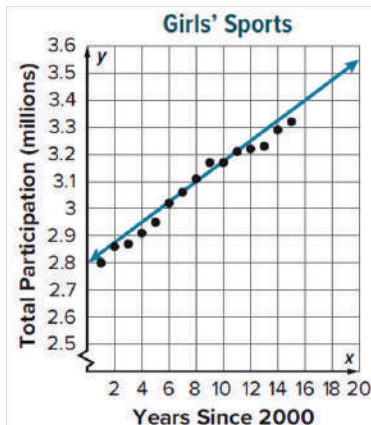
$$y = mx + b$$

$$y = (\text{slope})x + y\text{-intercept}$$

To find the slope, choose two clear points on the line that lie on grid intersections.



93) Write an equation in slope-intercept form for the line of fit that is drawn.



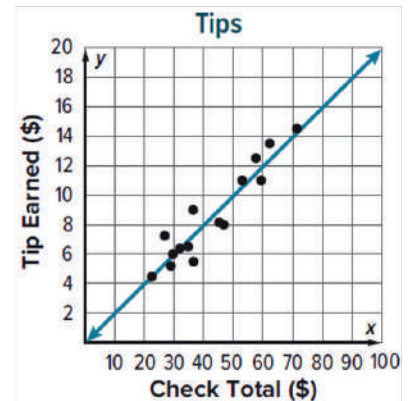
a) $y = 0.2x + 2.8$

b) $y = 0.0375x + 2.8$

c) $y = 0.375x + 2.8$

d) $y = 0.0375x - 2.8$

94) Write an equation in slope-intercept form for the line of fit that is drawn.



a) $y = 2x$

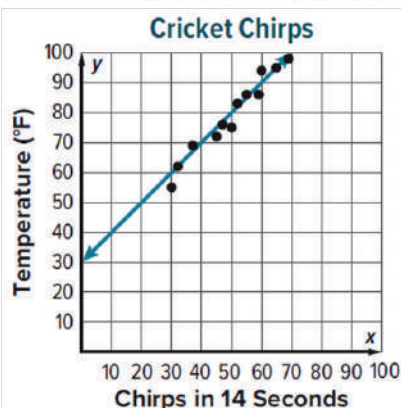
b) $y = 0.02x$

c) $y = 0.2x + 2$

d) $y = 0.2x$

Use the equation of the line of fit and substitute the known value to predict the unknown value.

95) Write an equation for the line of fit. Then use it to make a conjecture about the temperature when there are 40 cricket chirps.



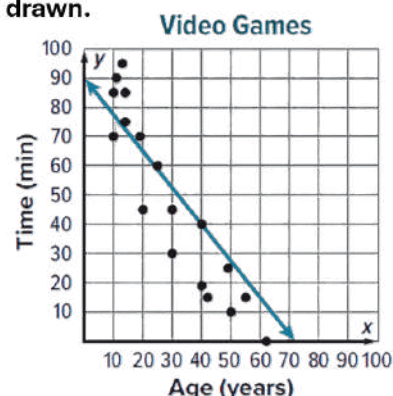
a) $y = x - 30$; 10°F

b) $y = 2x + 30$; 110°F

c) $y = x + 30$; 70°F

d) $y = 30x + 1$; 1201°F

96) Write an equation in slope-intercept form for the line of fit that is drawn.



a) $y = 0.8x + 90$

b) $y = -0.8x + 90$

c) $y = 1.25x + 90$

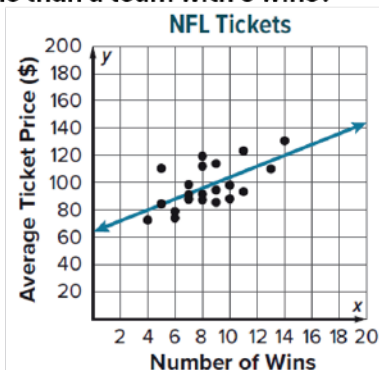
d) $y = -1.25x + 90$

23 Find the equation for a line that closely fits the data and use it to predict values that are not present in the original data set.

5-8

608

97) How much more is the average price of a ticket for a team with 14 wins than a team with 3 wins?



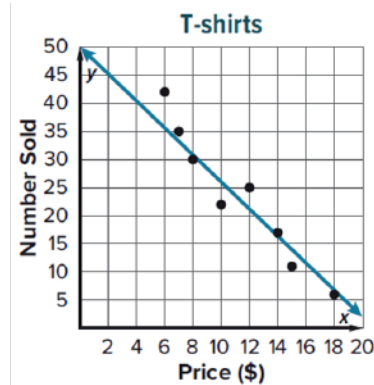
a) About \$22

b) About \$44

c) About \$66

d) About \$88

98) How many more T-shirts were sold for \$9 than \$16?



a) About 11

b) About 14

c) About 17

d) About 20

99) When will the slope of a line of fit be positive? When will it be negative?

a) Positive correlation → positive slope;
Negative correlation → negative slope.

b) Positive correlation → negative slope;
Negative correlation → positive slope.

c) The slope is always positive.

d) The slope is always negative.

100) What would make a scatter plot and its corresponding line of fit more useful to make accurate predictions? Will a line of fit always predict what will happen in the future? Explain your reasoning.

a) More data points; yes, because future data will always follow the same pattern.

b) More data points; no, because future trends may change and not follow the current pattern.

c) Fewer data points; yes, because they reduce variation in the data.

d) Fewer data points; no, because a line of fit cannot be used for predictions.



M11L4: Two-Way Tables

Two-Way Table

Statistical table that shows the observed number or frequency for two variables.

How to Fill in a Two-Way Table:

- Use the given data to fill in the known cells.
- If a **missing cell is in the middle** of a row or column, **subtract** from the total to find it.
- If a **missing cell is in a total** row or total column, **add** the values in that row or column to find it.
- Check that all row totals, column totals, and the grand total match.

	Maths	English	Total
Internal	3	4	7
External	7	9	16
Total	10	13	23

EXAMPLE

	Math	No Math	Total
Chess	8	?	23
No Chess	?	10	?
Total	19	?	?

Chess & No Math

$$= 23 - 8 = 15$$

No Chess Total

$$= 11 + 10 = 21$$

Grand Total

$$= 23 + 21 = 44$$

No Chess & Math =

$$19 - 8 = 11$$

No Math Total

$$= 15 + 10 = 25$$

101) Omar surveyed students at his school. He found that 23 students are in the Chess Club, and 8 of those students are in the Math Club. There are 19 students that are in the Math Club. Ten students are in neither club. Construct a two-way table summarizing the data.

a)

	Math Club	No Math Club	Total
Chess Club	8	15	23
No Chess Club	11	10	21
Total	19	25	44

b)

	Math Club	No Math Club	Total
Chess Club	8	15	23
No Chess Club	10	11	21
Total	18	26	44

c)

	Math Club	No Math Club	Total
Chess Club	15	8	23
No Chess Club	11	10	21
Total	26	18	44

d)

	Math Club	No Math Club	Total
Chess Club	8	11	19
No Chess Club	15	10	25
Total	23	21	44

Relative Frequency by Row =

$$\frac{\text{Cell value}}{\text{Total of that row}}$$

Write the result as a decimal next to each cell value.

(Hint: Ignore the total column when calculating relative frequency by row.)

$$30/75 = 0.4$$

$$25/76 = 0.33$$

	Buy Lunch	Pack a Lunch	Total
7 th Graders	30	45	75
8 th Graders	51	25	76
Total	81	70	151

102) The table shows the results of a survey that asked seventh and eighth grade students whether they buy or pack their lunch. Find the row relative frequencies. Round to the nearest hundredth. Are seventh graders or eighth graders more likely to buy their lunch?

	Buy Lunch	Pack a Lunch	Total
7 th Graders	30	45	75
8 th Graders	51	25	76
Total	81	70	151

a)
7th Grade: Buy = 0.40, Pack = 0.60
8th Grade: Buy = 0.67, Pack = 0.33
8th graders are more likely to buy lunch.

b)
7th Grade: Buy = 0.60, Pack = 0.40
8th Grade: Buy = 0.33, Pack = 0.67
7th graders are more likely to buy lunch.

c)
7th Grade: Buy = 0.40, Pack = 0.60
8th Grade: Buy = 0.33, Pack = 0.67
7th graders are more likely to buy lunch.

d)
7th Grade: Buy = 0.60, Pack = 0.40
8th Grade: Buy = 0.67, Pack = 0.33
Both grades are equally likely to buy lunch.

Relative Frequency by columns =

$$\frac{\text{Cell value}}{\text{Total of that column}}$$

Write the result as a decimal next to each cell value.

(Hint: Ignore the total row when calculating relative frequency by column.)

$$110/195 = 0.56$$

$$42/126 = 0.33$$

	Male	Female	Total
Bus	110	84	194
No Bus	85	42	127
Total	195	126	321

103) The table shows the results of a survey about the number of bus riders at McGuffey Junior High. Find the column relative frequencies. Round to the nearest hundredth. Are male students or female students more likely to not ride the bus?

	Male	Female	Total
Bus	110	84	194
No Bus	85	42	127
Total	195	126	321

a)
Male: Bus = 0.44, No Bus = 0.56
Female: Bus = 0.33, No Bus = 0.67
Female students are more likely not to ride the bus.

b)
Male: Bus = 0.56, No Bus = 0.44
Female: Bus = 0.67, No Bus = 0.33
Male students are more likely not to ride the bus.

c)
Male: Bus = 0.56, No Bus = 0.44
Female: Bus = 0.67, No Bus = 0.33
Female students are more likely not to ride the bus.

d)
Male: Bus = 0.67, No Bus = 0.33
Female: Bus = 0.56, No Bus = 0.44
Both groups are equally likely not to ride the bus.

104) The two-way table shows the enrollment in language classes at Carson Middle School. Which of the following are valid conclusions about the data?

	Enrolled in Spanish	Not Enrolled in Spanish	Total
Enrolled in French	30	65	95
Not Enrolled in French	20	5	25
Total	50	70	120

a) More than half of the students are not enrolled in French or Spanish.

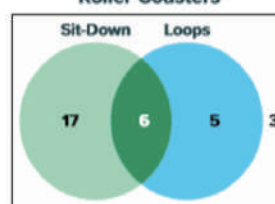
b) Students enrolled in Spanish are likely to be enrolled in French.

c) More than half of the students are enrolled in French.

d) Students are more likely to be enrolled in Spanish than not in Spanish.

105) The Venn diagram shows data about the roller coasters at two different Amusement parks. It compares whether or not they are sit-down coasters and whether or not they have loops. Construct a two-way table to represent the data.

Sit-Down Versus Suspended Roller Coasters



a)

	Sit-Down	Suspended	Total
Loops	6	5	11
No Loops	17	3	20
Total	23	8	31

b)

	Sit-Down	Suspended	Total
Loops	5	6	11
No Loops	17	3	20
Total	22	9	31

c)

	Sit-Down	Suspended	Total
Loops	6	5	11
No Loops	3	17	20
Total	9	22	31

d)

	Sit-Down	Suspended	Total
Loops	17	6	23
No Loops	5	3	8
Total	22	9	31

106) Natalia surveyed 150 people about When going to the movie theater, if they like to watch comedies or dramas and whether or not they buy popcorn. Out of 90 people that liked comedies, 75 said they buy popcorn. There were 40 people that said they do not buy popcorn. Natalia created the two-way table shown to display the results. Find her mistake and correct it.

	Popcorn	No Popcorn	Total
Comedy	75	35	110
Drama	15	25	40
Total	90	60	150

a) Comedy Total = 100, Drama Total = 50, Popcorn Total = 110, No Popcorn Total = 40

b) Comedy Total = 110, Drama Total = 40, Popcorn Total = 90, No Popcorn Total = 60

c) Comedy Total = 90, Drama Total = 60, Popcorn Total = 100, No Popcorn Total = 50

d) Comedy Total = 90, Drama Total = 60, Popcorn Total = 110, No Popcorn Total = 40



Answer key

L.O	Question	Answer
1	1	A
	2	C
	3	A
	4	B
	5	C
	6	A
2	7	A
	8	B
3	9	B
	10	C
	11	B
	12	C
	13	A
	14	B

L.O	Question	Answer
4	15	A
	16	D

L.O	Question	Answer
5	17	A
	18	B
	19	A
	20	A
	21	A
	22	B
6	23	A
	24	A
	25	D
	26	A
	27	C
	28	B

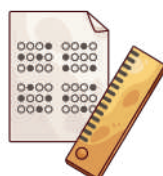
L.O	Question	Answer
7	29	D
	30	A
	31	B
	32	B
	33	C
	34	C
8	35	A
	36	B
	37	A
9	38	B
	39	B
10	40	B
	41	C

L.O	Question	Answer
11	42	B
	43	C
	44	A
	45	A
	46	A
12	47	D
	48	B
	49	A
	50	D
	51	C
	52	C
	53	C

L.O	Question	Answer
13	54	B
	55	C
	56	C
	57	B
	58	B
	59	B

L.O	Question	Answer
14	60	C
	61	B
	62	C
	63	B
15	64	B
	65	A
	66	B
	67	C
	68	B
	69	C
	70	B
	71	A

L.O	Question	Answer
16	72	C
	73	B
	74	C
	75	B
	76	C
17	77	B
	78	B
	79	C





Answer key

L.O	Question	Answer
18	80	B
	81	C
	82	C
	83	B
	84	B
	85	C

L.O	Question	Answer
23	97	B
	98	C
	99	A
	100	B
24	101	A
	102	A
	103	B
25	104	B
	105	A
	106	D

L.O	Question	Answer
19	86	A
20	87	C
	88	B
21	89	A
	90	A
	91	C
	92	D
22	93	B
	94	D
	95	C
	96	D

مع ختام العام الدراسي، أتمنى أن تكون هذه الملزمة عوناً لكم في مراجعة ما تعلمتموه، وأن تحققوا النجاح والتفوق الذي تستحقونه. أثق بقدراتكم وبما بذلتموه من جهد، وأسأل الله أن يوفقكم في امتحاناتكم ويكمل مسيرتكم بالتميز.



معلمتكم
نجلاء أبو صالح