

سلسلة الطارق في الرياضيات



تم تحميل هذا الملف من موقع المناهج الإماراتية

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المزيد من مادة
رياضيات:

إعداد: طارق علي

التواصل الاجتماعي بحسب الصف السادس



صفحة المناهج
الإماراتية على
فيسبوك

الرياضيات

اللغة الانجليزية

اللغة العربية

التربية الاسلامية

المواد على تلغرام

المزيد من الملفات بحسب الصف السادس والمادة رياضيات في الفصل الثالث

اختبار تجريبي محاكي للاختبار الوزاري

1

حقيقتي التدريبية: كراسة تدريبية

2

أسئلة متوقعة للامتحان 2026م

3

مراجعة الوحدة السادسة (التعابير)

4

قوانين الهندسة مادة الرياضيات وفق الهيكل

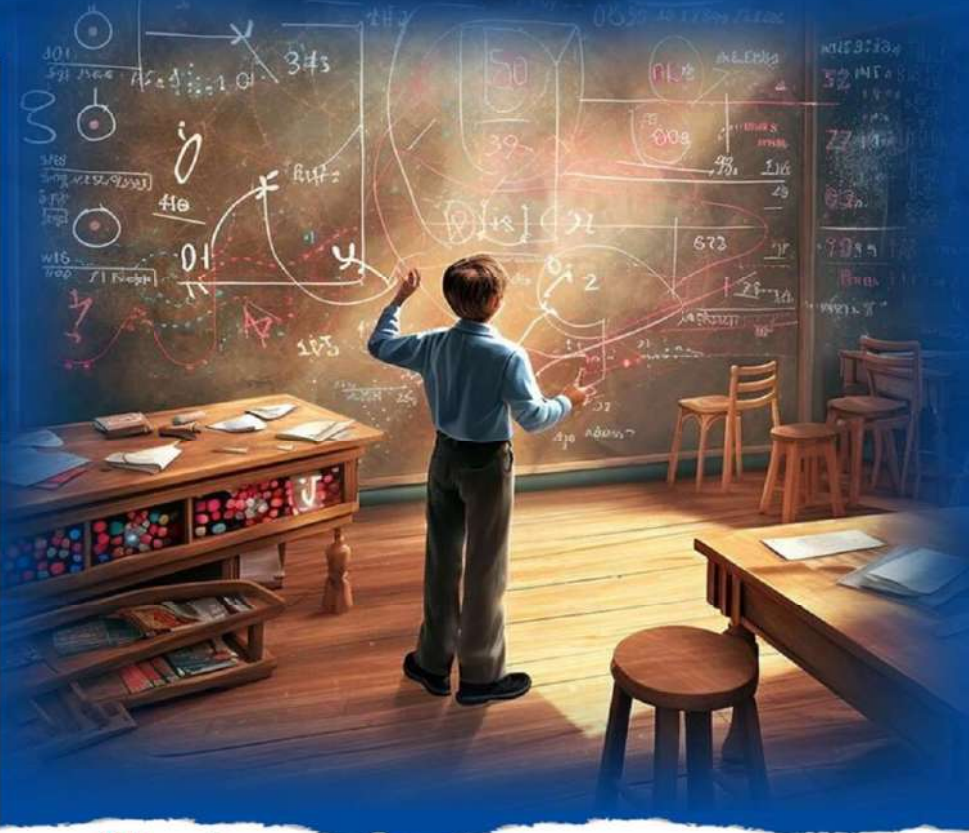
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الطارق

سلسلة

الرياضيات

هيكل 6 متقدم ريفيل 2026



منطقة طارق أكاديمي للرياضيات

Tarek Academy

صف سادس (متقدم ريفيل)

الطارق

أستاذ الرياضيات

0562854282 037637703

Mr Tarek Ali

منصة طارق أكاديمي

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Q1-MCQ 7-1

1. Sadie ordered a pizza and had it delivered. The delivery fee is \$3.50. The total cost c is equal to the cost of her pizza p plus \$3.50. The rule is $p + 3.50$. Complete the table using the rule to find the total cost if her pizza costs \$9.75, \$12.00, or \$14.50. (Example 1)

Input, Cost of Pizza (\$), p	Rule $p + 3.50$	Output, Total Cost (\$), c
9.75	$9.75 + 3.50$	13.25
12.00	$12.00 + 3.50$	15.50
14.50	$14.50 + 3.50$	18

2. Joshua has a coupon for \$1.50 off his purchase at the souvenir shop. The total cost c is equal to the cost of his purchase p minus \$1.50. The rule is $p - 1.50$. Complete the table using the rule to find the total cost if his purchase is \$5.67, \$8.34, or \$11.97. (Example 1)

Input, Cost of Purchase (\$), p	Rule $p - 1.50$	Output, Total Cost (\$), c
5.67	$5.67 - 1.50$	4.17
8.34	$8.34 - 1.50$	6.84
11.97	$11.97 - 1.50$	10.47



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3. Miranda has a coupon for \$0.75 off any salad at a restaurant. The total cost c is equal to the cost of her salad s minus \$0.75. The rule is $s - 0.75$. Complete the table using the rule to find the total cost if her salad costs \$2.79, \$3.55, or \$4.25. (Example 1)

Input, Cost of Salad (\$), s	Rule $s - 0.75$	Output, Total Cost (\$), c
2.79	$2.79 - 0.75$	2.04
3.55	$3.55 - 0.75$	2.80
4.25	$4.25 - 0.75$	3.50

Avery is buying material by the yard to make bags. The material costs \$4.98 per yard. The total cost c of y yards is equal to 4.98 times y . Complete the table to find the number of yards Avery purchased if the total cost is \$14.94, \$29.88, or \$44.82. (Example 2)

Input, Number of Yards, y	Rule $4.98y$	Output, Total Cost (\$), c
3	$4.98(3)$	14.94
6	$4.98(6)$	29.88
9	$4.98(9)$	44.82



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5. Each pie at a bakery costs \$9.50. The total cost c of p pies is equal to 9.50 times p . Complete the table to find the number of pies purchased if the total cost is \$19.00, \$28.50, or \$47.50. (Example 2)

Input, Number of Pies, p	Rule $9.50p$	Output, Total Cost (\$), c
2	$9.50(2)$	19.00
3	$9.50(3)$	28.50
5	$9.50(5)$	47.50

6. **Table Item** Anthony is buying plants for his garden. Each plant costs \$0.95. The total cost c of p plants is equal to 0.95 times p . Complete the table to find the number of plants Anthony purchased if the total cost is \$7.60, \$11.40, or \$15.20.

Input, Number of Plants, p	Rule $0.95p$	Output, Total Cost (\$), c
8	$0.95(8)$	7.60
12	$0.95(12)$	11.40
16	$0.95(16)$	15.20



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Q2-MCQ 7-2

1. The table shows the total cost c of buying t movie tickets. Write an equation to represent the relationship between c and t .

(Example 1)

Number of Tickets, t	Total Cost (\$), c
1	7
2	14
3	21
4	28

A) $c = t + 6$

B) $c = 7t$

C) $t = 7c$

D) $c = 7 + t$

2. The table shows the total number of pencils p in b boxes. Write an equation to represent the relationship between p and b .

(Example 1)

Number of Boxes, b	Total Number of Pencils, p
1	12
2	24
3	36
4	48

A) $p = 12b$

B) $b = 12p$

C) $p = b + 11$

D) $p = 12 + b$



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3. The table shows the total cost of bowling any number of games and renting bowling shoes. Write a two-step equation to represent the total cost c for bowling g games. (Example 2)

Number of Games, g	Total Cost (\$), c
1	6
2	10
3	14
4	18

A) $c = 6g$

B) $c = 2g + 4$

C) $c = 4g + 2$

D) $c = 4g - 2$

$$6 - 4 = 2$$

$$2(1) + 4 = 6$$

$$4(1) + 2 = 6$$

4. The table shows the total cost of renting a canoe based on the number of hours and a one-time rental fee. Write a two-step equation to represent the total cost c of renting a canoe for h hours. (Example 2)

Number of Hours, h	Total Cost (\$), c
1	16
2	27
3	38
4	49

A) $c = 11h + 5$

B) $c = 16h$

C) $c = 5h + 11$

D) $c = 11h + 16$

$$16 - 11 = 5$$



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5. **Open Response** The table shows the total cost of belonging to a fitness center based on the number of months and a one-time registration fee. Write a two-step equation to represent the total cost c for belonging to the fitness center for m months.

Number of Months, m	Total Cost (\$), c
1	25
2	40
3	55
4	70

A) $c = \underline{15}m + 10$

B) $c = 25m$

C) $c = 10m + 15$

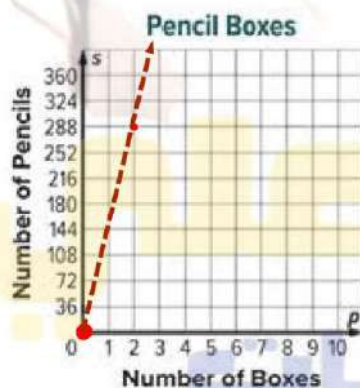
D) $c = \underline{15}m + 25$

$25 - 15 = 10$

Q3-MCQ 7-3

1. The equation $p = 144b$ represents the number of pencils p in b boxes. Graph the relationship on the coordinate plane.

(Example 1)



p	$144b$
0	$144(0) = 0$
2	$144(2) = 288$

order pair

$(0, 0)$ $(2, 288)$

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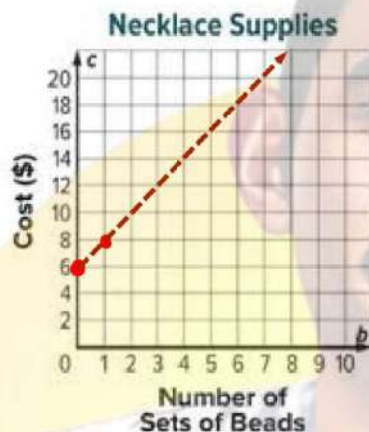
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2. The equation $c = 2b + 6$ represents the total cost c of b sets of beads and one necklace string. Graph the relationship on the coordinate plane. (Example 1)



b	$2b + 6$
0	$2(0) + 6 = 6$
1	$2(1) + 6 = 8$

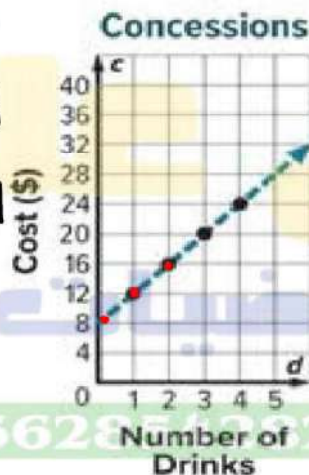
order pair $(0, 6)$
 $(1, 8)$

3. The graph shows the total cost c of buying one large bucket of popcorn and d large drinks. Write an equation from the graph that could be used to find the total cost c if you buy one large bucket of popcorn and d large drinks. (Example 2)

Handwritten work for Example 2:

d	c
0	8
1	12
2	16

Arrows indicate the slope: $(1-0)/(12-8) = 1/4$ and $(2-0)/(16-8) = 2/8 = 1/4$.



- A) $c = 4d + 8$
 B) $c = 8d + 4$
 C) $c = 12d$
 D) $c = 4d + 12$



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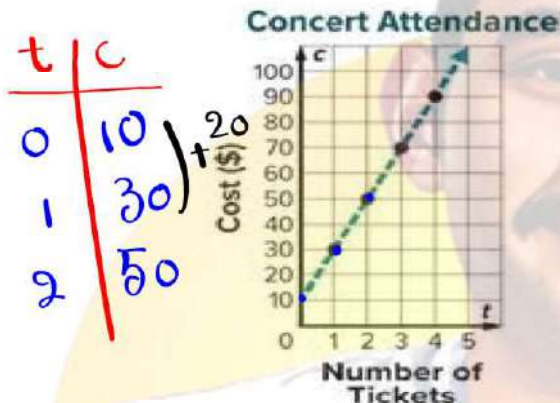
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- 4. Open Response** The graph shows the total cost c of buying one parking pass and t tickets to a concert. Write an equation from the graph that could be used to find the total cost c if you buy one parking pass and t tickets to a concert. (Example 2)



A) $c = 30t + 10$

✓ B) $c = 20t + 10$

C) $c = 10t + 20$

D) $c = 20t$

0 → 10

Q4-MCQ 7-4

1. A school sells tickets to their school play through an online ticket company. Each ticket costs \$8 and the company charges a \$2.50 processing fee per order. Represent the relationship between the number of tickets bought t and the total cost c with an equation, a table, and a graph. (Example 1)

each
per
every → [x]
average

- a. Represent the relationship with an equation.

A) $c = 2.50t + 8$

✓ B) $c = 8t + 2.50$

C) $c = 10.50t$

D) $c = 8t - 2.50$

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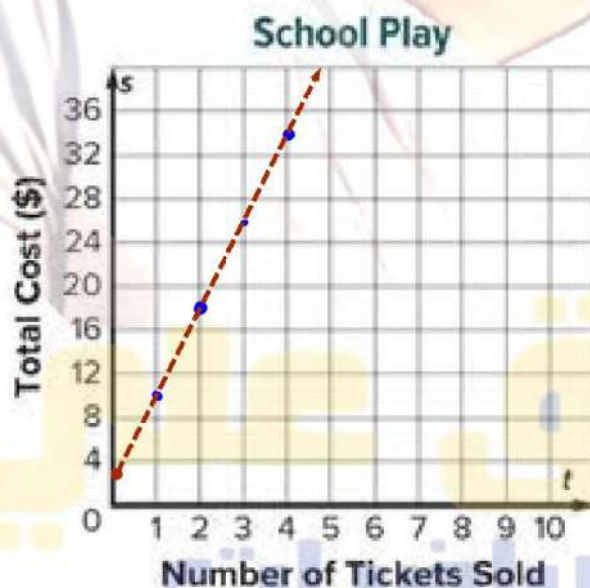
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b. Represent the relationship with a table.

$$c = 8t + 2.50$$

Number of Tickets, t	Total Cost (\$), c
1	$8(1) + 2.50 = 10.50 \rightarrow (1, 10.50)$
2	$8(2) + 2.50 = 18.50 \rightarrow (2, 18.50)$
3	$8(3) + 2.50 = 26.50 \rightarrow (3, 26.50)$
4	$8(4) + 2.50 = 34.50 \rightarrow (4, 34.50)$

c. Represent the relationship with a graph.



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2. Carmelo earns a weekly allowance of \$5 plus an additional \$0.75 for each chore that he completes. Represent the relationship between the total earned t and the number of chores completed c with an equation, a table, and a graph. (Example 1)

A) $t = 5c + 0.75$

B) $t = 0.75c + 5$

C) $t = 5.75c$

- a. Represent the relationship with an equation.

$$t = 0.75c + 5$$

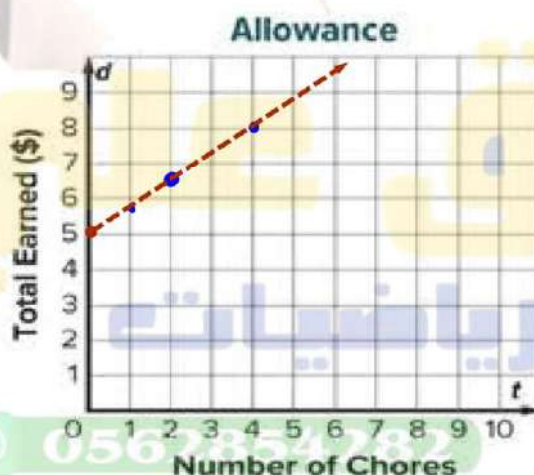
D) $c = 0.75t + 5$

- b. Represent the relationship with a table.

Number of Chores, c	Total Earned (\$), t
1	$0.75(1) + 5 = 5.75 \rightarrow (1, 5.75)$
2	$0.75(2) + 5 = 6.50 \rightarrow (2, 6.50)$
3	$0.75(3) + 5 = 7.25 \rightarrow (3, 7.25)$
4	$0.75(4) + 5 = 8 \rightarrow (4, 8)$

$$t = 0.75c + 5$$

- c. Represent the relationship with a graph.



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3. **Open Response** The table shows the earnings for each pie sold at the sixth grade bake sale. Represent the relationship between the number of pies sold p and the total earnings e with an equation.

Number of Pies, p	Total Earnings (\$), e
1	6
2	12
3	18

A) $e = p + 5$

B) $e = 6p$

C) $p = 6e$

D) $e = p + 6$

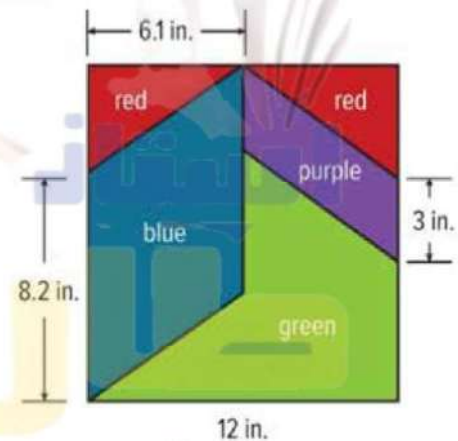
$6 - 6 = 0$

$e = 6p$

Q5-MCQ 8-1

1. The pattern shows the dimensions of a quilting square that Nakida will use to make a quilt. How much blue fabric will she need to make one square? (Example 1)

A) 84 B) 612 C) 11 D) 50.02



$A = l \times w$

$= 8.2 \times 6.1$

$= 50.02$



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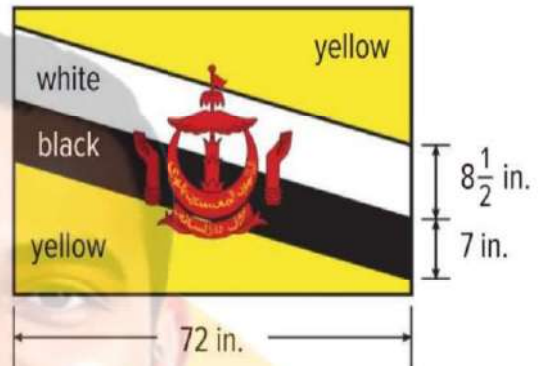
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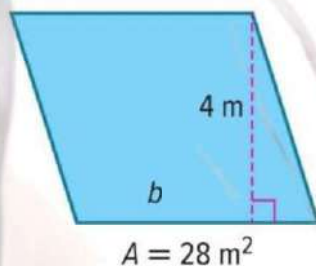
2. A group of students is painting the flag of Brunei for a geography project. Joseph is responsible for painting only the background colors of the flag. How many square inches will he cover with white paint?



$$A = b \times h = 12 \times 8.5$$

- A) 84 ☒ B) 612 C) 11 D) 50.02

3. Find the missing dimension of the parallelogram. (Example 2)



$$b = \frac{A}{h}$$

$$b = \frac{28}{4}$$

$$= 7$$

- A) 4 B) 5 ☒ C) 7 D) 12

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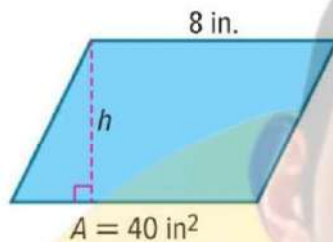
4. Find the missing dimension of the parallelogram. (Example 2)

A) 4

B) 5

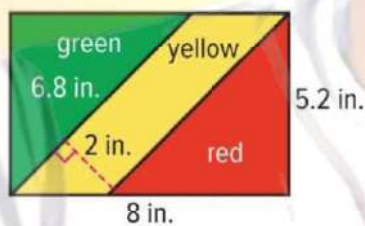
C) 7

D) 12



$$h = \frac{A}{b} = \frac{40}{8} = 5$$

5. Find the area of the yellow striped region of the flag of the Republic of the Congo.



A) 4

B) 99

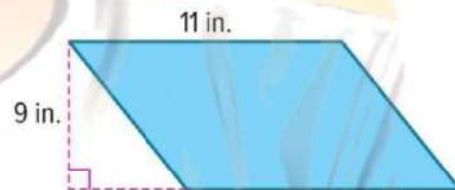
C) 13.6

D) 12

$$A = b \times h = 2 \times 6.8 = 13.6$$

6. Open Response What is the area of the parallelogram?

$$A = b \times h = 11 \times 9$$



A) 4

B) 99

C) 13.6

D) 12

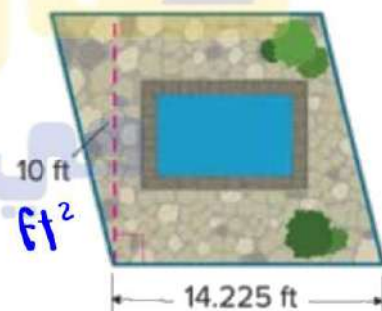
Apply

Q6 -MCQ 8.1

7. Liam is designing a patio and fountain for his backyard. The fountain will cover 50 square feet. The remaining space will be covered with tiles. If one tile covers 2.25 square feet, how many tiles will Liam need?

$$A = b \times h = 14.225 \times 10 = 142.25 \text{ ft}^2$$

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$$\textcircled{2} 112.25 - 50 = 92.25 \text{ ft}^2$$

A.40

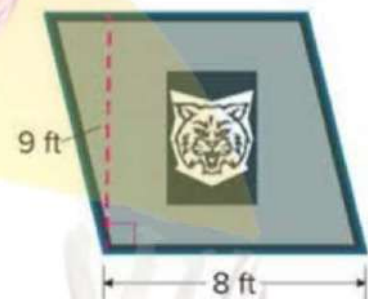
$$\textcircled{3} 92.25 \div 2.25 = 41$$

✓ B.41

C.50

D.60

8. Tara and Veronica are making a parallelogram-shaped banner for a football game. They will paint the entire banner except for a rectangular section where a photo of the school's mascot will be placed. The photo of the mascot has an area of 6 square feet. If a 16-ounce bottle of primer covers 24 square feet, how many bottles of paint will they need?



$$\textcircled{1} A = b \times h = 9 \times 8 = 72 \text{ ft}^2$$

A.4

$$\textcircled{2} 72 - 6 = 66 \text{ ft}^2$$

✓ B.3

$$\textcircled{3} 66 \div 24 = 2.75 \approx 3$$

C.5

D.6

9. **MP Identify Structure** Find the area of the shaded region.



Big A - white A

A.460

$$31 \times 18 - 13 \times 6$$

B.340

$$558 - 78$$

✓ C.480

$$= 480$$

D.640



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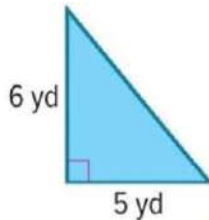


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Q7-MCQ 8-2

Find the area of each triangle. (Example 1)

1.



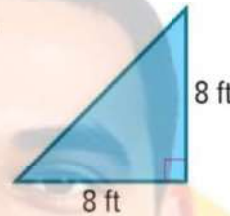
$$A = \frac{1}{2}bh$$

$$= \frac{1}{2} \times 6 \times 5$$

$$= 3 \times 5$$

- ~~A) 15~~ ~~B) 16.5~~ ~~C) $11\frac{3}{8}$~~ ~~D) 32~~ ~~A) 15~~ ~~B) 16.5~~ ~~C) $11\frac{3}{8}$~~ ~~D) 32~~

2.



$$A = \frac{1}{2} \times 8 \times 8$$

$$= 4 \times 8$$

$$= 32$$

3. Tameeka is in charge of designing a school pennant for spirit week. What is the area of the pennant? (Example 2)



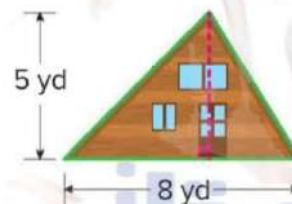
- ~~A) 15~~ ~~B) 16.5~~ ~~C) $11\frac{3}{8}$~~ ~~D) 32~~

$$A = \frac{1}{2} \times 6\frac{1}{2} \times 3\frac{1}{2}$$

$$= \frac{1}{2} \times \frac{13}{2} \times \frac{7}{2} = \frac{91}{8}$$

$$= 11\frac{3}{8}$$

4. Norma has an A-frame cabin. The back is shown below. If the total area of the windows and doors is 3.5 square yards, how many square yards of paint will she need to cover the back of the cabin? (Example 2)



- ~~A) 15~~ ~~B) 16.5~~ ~~C) $11\frac{3}{8}$~~ ~~D) 32~~

$$A = \frac{1}{2} \times 8 \times 5$$

$$= 4 \times 5$$

$$= 20$$

$$A = 20 - 3.5 = 16.5$$



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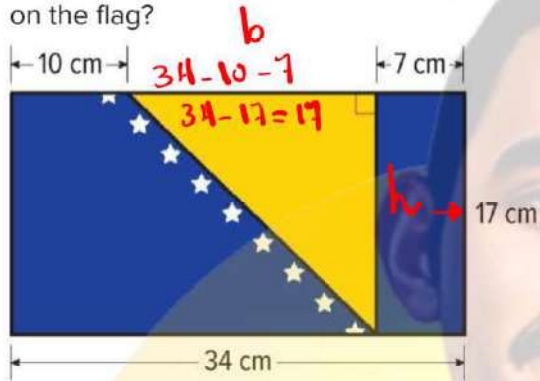
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7. The flag of Bosnia and Herzegovina is shown. What is the area of the triangle on the flag?

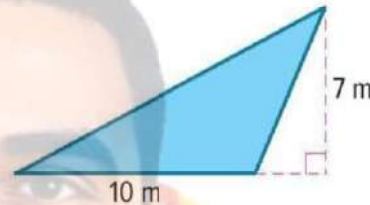


- A) 144.5 B) 4 C) 9 D) 35

$$A = \frac{1}{2} \times 17 \times 17$$

$$= \frac{1}{2} \times 289 = \frac{289}{2} = 144.5$$

8. Open Response What is the area of the triangle?



- A) 144.5 B) 4 C) 9 D) 35

$$A = \frac{1}{2} \times 10 \times 7$$

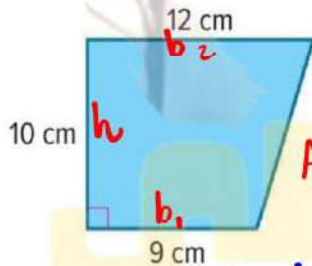
$$= 5 \times 7$$

$$= 35$$

Q8-MCQ 8-3

Decompose each trapezoid to find its area. (Example 1)

1.



$$A = \frac{1}{2} (b_1 + b_2) h$$

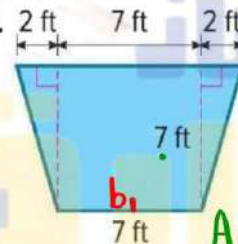
$$A = \frac{1}{2} (9 + 12) \times 10$$

- a) 95 cm²
b) 100 cm²
✓ c) 105 cm²
d) 110 cm²

$$A = 5 \times 21$$

$$= 105$$

2.



$$A = \frac{1}{2} (b_1 + b_2) h$$

$$A = \frac{1}{2} \times (7 + 11) \times 7$$

$$= \frac{1}{2} \times 18 \times 7$$

$$= 9 \times 7$$

$$= 63$$

- a) 56 ft²
b) 60 ft²
✓ c) 63 ft²
d) 66 ft²



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6 AD

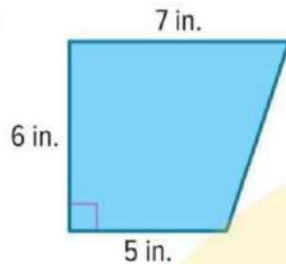


سلسلة الطارق في الرياضيات

Q9-MCQ 8-3

Find the area of each trapezoid. (Example 2)

3.



a) 30 in^2

b) 33 in^2

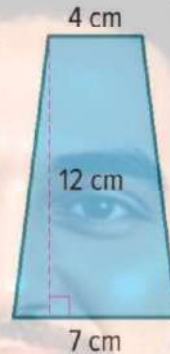
✓ c) 36 in^2

d) 39 in^2

$$A = \frac{1}{2} (5 + 7) (6)$$

$$= \frac{1}{2} \times 12 \times 6 = 6 \times 6 = 36$$

4.



a) 60 cm^2

b) 63 cm^2

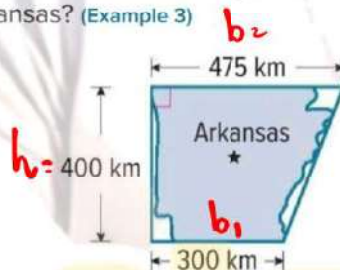
✓ c) 66 cm^2

d) 69 cm^2

$$A = \frac{1}{2} (7 + 4) (12)$$

$$= \frac{1}{2} \times 11 \times 12 = 11 \times 6 = 66$$

5. The shape of Arkansas resembles a trapezoid. What is the approximate area of Arkansas? (Example 3)



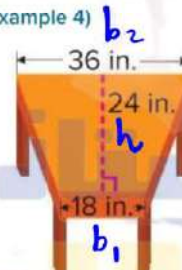
a) $120,000 \text{ km}^2$ $A = \frac{1}{2} (475 + 300)$

b) $140,000 \text{ km}^2$ $\times 400$

✓ c) $155,000 \text{ km}^2$ $A = 200 \times 775$

d) $170,000 \text{ km}^2$ $= 155000$

6. The top of the desk shown is in the shape of a trapezoid. What is the area of the top of the desk? (Example 4)



a) 500 in^2

b) 600 in^2

✓ c) 648 in^2

d) 700 in^2

$$\frac{1}{2} (18 + 36) (24)$$

$$= 12 \times 54$$

$$= 648$$



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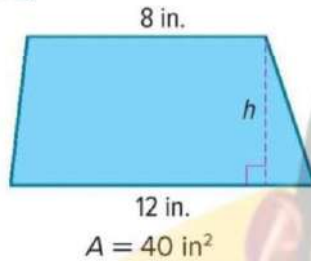
6 AD



سلسلة الطارق في الرياضيات

7. Find the missing dimension of the trapezoid.

(Example 5)



a) 3 in.

b) 4 in.

c) 5 in.

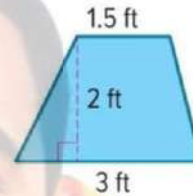
d) 6 in.

$$h = \frac{2A}{b_1 + b_2}$$

$$h = \frac{2 \times 40}{12 + 8}$$

$$h = \frac{80}{20} = \frac{8}{2} = \boxed{4}$$

8. Open Response: Ciro made a sign in the shape of a trapezoid. What was the area of Ciro's sign?



a) 3.0 sq ft

b) 3.5 sq ft

c) 4.5 sq ft

d) 5.0 sq ft

$$A = \frac{1}{2} (3 + 1.5) (2)$$

$$= 1 \times 4.5$$

$$= 4.5$$

Q10-MCQ 8-4

1. Kendra knitted the coaster shown as a present for her grandmother. The coaster is shaped like a regular hexagon. Each side of the hexagon is 3.5 inches. Find the area of the coaster. Round to the nearest hundredth. (Example 1)

a) 28.50 sq in.

b) 30.15 sq in.

c) 31.83 sq in.

d) 33.20 sq in.

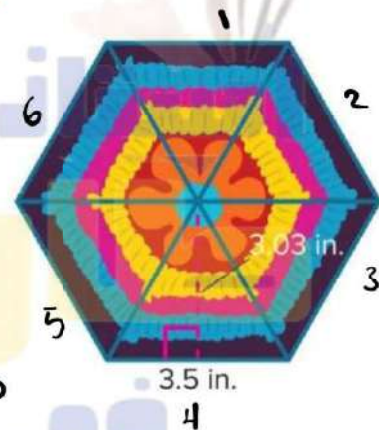
$$A = \frac{1}{2} n b h$$

↘ Δ (sides)

$$= \frac{1}{2} \times 6 \times 3.5 \times 3.03$$

$$= 3 \times 3.5 \times 3.03$$

$$= 3.5 \times 9.09$$



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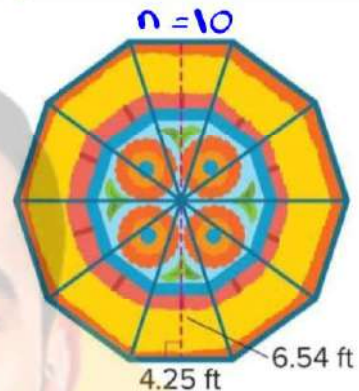
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سلسلة الطارق في الرياضيات

2. Paul bought a new rug in the shape of a regular decagon. Each side of the decagon is 4.25 feet. Find the area of the rug. Round to the nearest hundredth. (Example 1)



a) 130.50 sq ft

b) 135.25 sq ft

c) 139.00 sq ft

d) 142.75 sq ft

$$A = 10 \times \frac{1}{2}bh$$

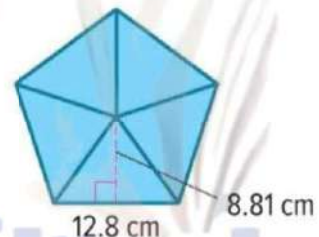
$$= 5 \times 4.25 \times 6.54$$

$$= 21.25 \times 6.54$$

$$= 138.975 \approx 139$$

3. **Open Response** A regular pentagon is shown. What is the area of the pentagon?

n = 5

a) 250.50 cm²b) 275.25 cm²c) 281.92 cm²d) 290.75 cm²

$$A = 5 \times \frac{1}{2}bh$$

$$= 5 \times \frac{1}{2} \times 12.8 \times 8.81$$

$$= 5 \times 6.4 \times 8.81$$

$$= 32 \times 8.81$$

$$32 \times 8.81 \approx 281.92$$



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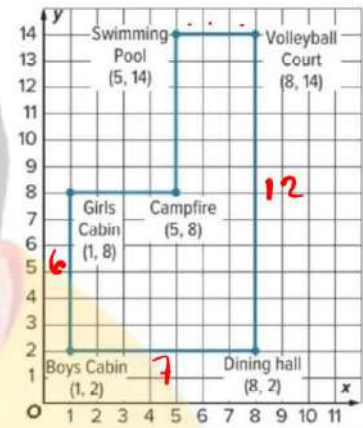
سلسلة الطارق في الرياضيات

Q11-MCQ 8.5

$$P = 3 + 12 + 7 + 6 + 11 + 6$$

$$= 38$$

Find the perimeter of the summer camp shown on the coordinate plane.

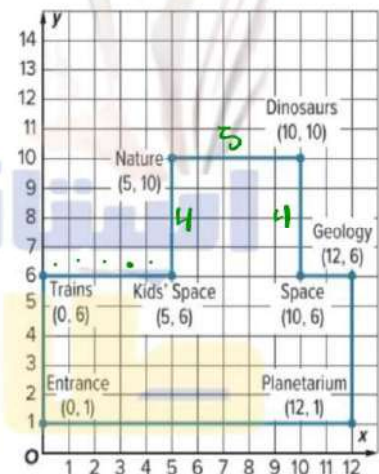


A	24 units	C	32 units
B	38 units	D	36 units

$$P = 5 + 11 + 11 + 2 + 5 + 12 + 5 + 5$$

$$P = 42$$

Find the perimeter of the science center shown on the coordinate plane.



A	40 units	C	42 units
B	38 units	D	36 units



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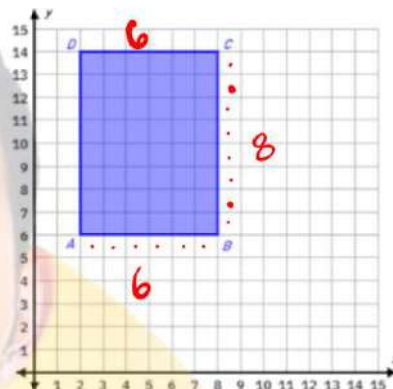
سلسلة الطارق في الرياضيات

Q12-MCQ 8.5

$$P = 6 + 6 + 8 + 8$$

What is the perimeter?

$$P = 28$$

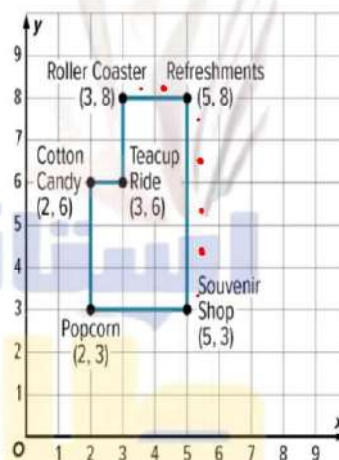


A	24 units	C	14 units
B	28 units	D	21 units

$$P = 2 + 5 + 3 + 3 + 1 + 2$$

$$P = 16$$

Find the perimeter of the amusement park shown on the coordinate plane



A	15 units	C	16 units
B	14 units	D	21 units

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6 AD

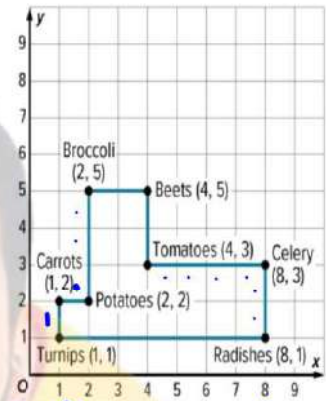


سلسلة الطارق في الرياضيات

$$P = 2 + 2 + 4 + 2 + 9 + 1 + 3$$

$$P = 22$$

Find the perimeter of the vegetable garden shown on the coordinate plane.



A	24 units	C	14 units
B	28 units	D	22 units

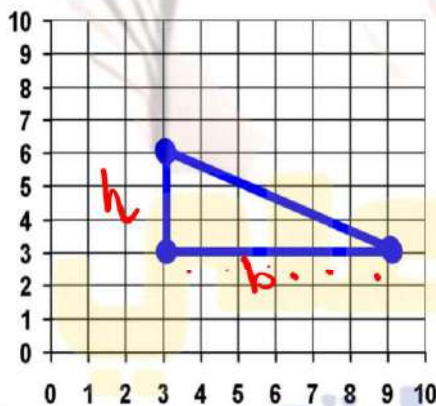
5. A polygon has vertices $A(3, 3)$, $B(3, 6)$, and $C(9, 3)$. Find the area of the polygon. (Example 3)

A) 20

~~B) 9~~

C) 22

D) 8



$$A = \frac{1}{2}bh$$

$$= \frac{1}{2} \times 6 \times 3$$

$$= 3 \times 3$$

$$= \boxed{9}$$

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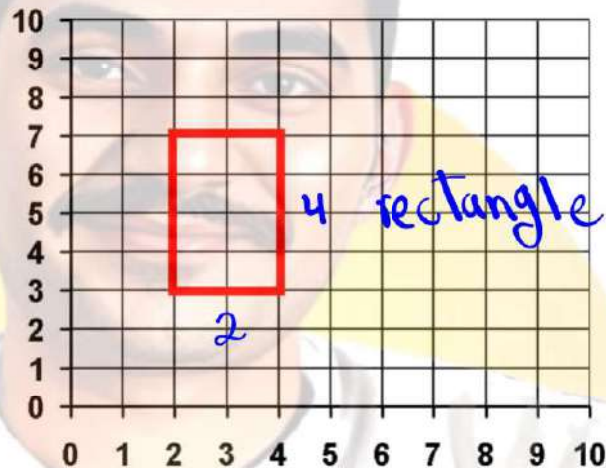
6 AD



سلسلة الطارق في الرياضيات

6. Multiple Choice A polygon has vertices $J(2, 3)$, $K(4, 3)$, $L(4, 7)$, and $M(2, 7)$. What is the area of the polygon? (Example 3)

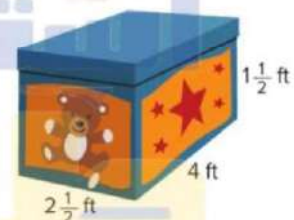
- ☒ A 8 square units
☐ B 10 square units
☐ C 12 square units
☐ D 16 square units



$$A_{\square} = l \times w \\ = 2 \times 4 \\ = 8$$

Q13-MCQ 9.1

What is the volume of the toy box?



A	8 ft^3	☒ C	15 ft^3
B	12 ft^3	D	18 ft^3

$$V = l \times w \times h = 4 \times \frac{5}{2} \times \frac{3}{2} = 5 \times 3 = 15$$



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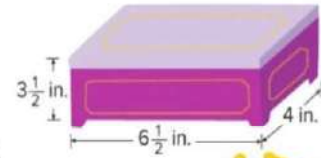
6 AD



سلسلة الطارق في الرياضيات

$$V = A \times \frac{1}{2} \times \frac{13}{2} = 7 \times 13 = 91$$

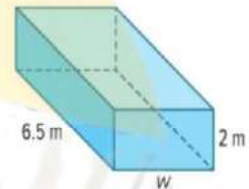
What is the volume of the jewelry box?



A	84 in ³	C	96 in ³
B	91 in ³	D	104 in ³

The rectangular prism has a volume of 52 cubic meters. What is the width of the prism?

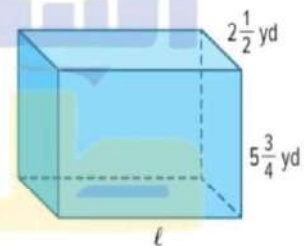
$$w = \frac{V}{l \times h} = \frac{52}{2 \times 6.5} = \frac{52}{13}$$



A	2 m	C	6.5 m
B	4 m	D	8 m

The rectangular prism has a volume of 115 cubic yards. What is the length of the prism?

$$l = \frac{V}{w \times h} = \frac{115}{\frac{5}{2} \times \frac{23}{4}} = \frac{115 \times 2 \times 4}{5 \times 23}$$



A	6 yd	C	10 yd
B	8 yd	D	12 yd

$$\frac{115 \times 8}{115} = 8$$



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سلسلة الطارق في الرياضيات

Raphael drives a standard-sized dump truck with a rectangular prism shaped bed. The volume of the bed of the truck is 720 cubic feet. If the length of the bed is 15 feet and the width is 8 feet, what is the height of the bed of the dump truck?

A	6 yd	C	10 yd
B	8 yd	D	12 yd

$$h = \frac{V}{l \times w} = \frac{720}{15 \times 8} = \frac{\cancel{8} \times 90}{15 \times \cancel{8}} = 6$$

A rectangular prism has a length of 8 inches, a width of $7\frac{1}{2}$ inches, and a height of $6\frac{1}{4}$ inches. What is the volume of the prism?

A	300 in ³	C	375 in ³
B	350 in ³	D	400 in ³

$$V = l \times w \times h = \cancel{8} \times \frac{15}{2} \times \frac{25}{4}$$

$$= 15 \times 25$$

$$= 375$$

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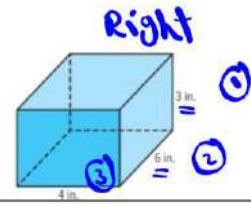
6 AD



سلسلة الطارق في الرياضيات

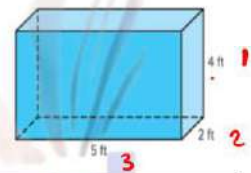
Q14-MCQ 9.2

Which of the following nets can be used to represent the figure below?



A		C	
B		D	

Which of the following nets can be used to represent the figure below?



A		C	
B		D	



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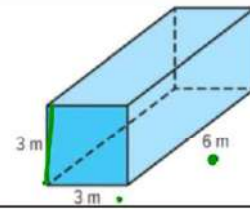
6 AD



سلسلة الطارق في الرياضيات

Which of the following nets can be used to represent the figure below?

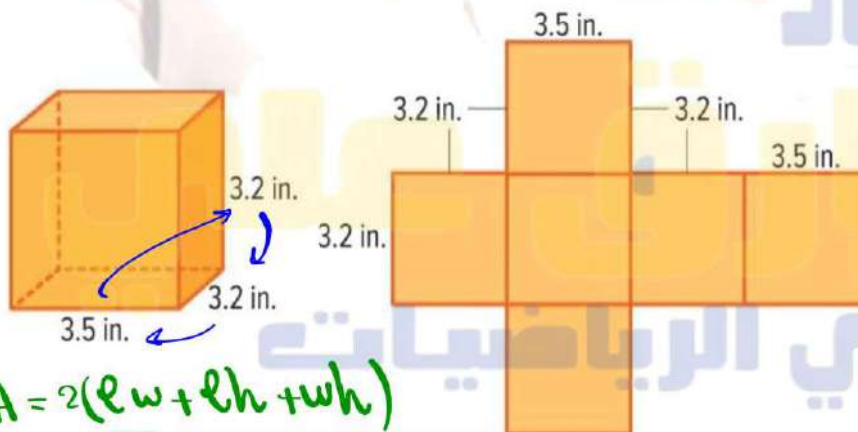
width $\rightarrow$ Height $\rightarrow$ length



A		C	
B		D	

2. Trey is using cardboard to construct building blocks that are shaped like rectangular prisms. Use the net to determine the minimum amount of cardboard he will need to construct one block. (Example 2)

Surface Area



A) 1120

B) 6.25

C) 65.28

D) 3.75

$$SA = 2(lw + lh + wh)$$

$$= 2(3.2 \times 3.2 + 3.2 \times 3.5 + 3.5 \times 3.2) \approx 65.28$$



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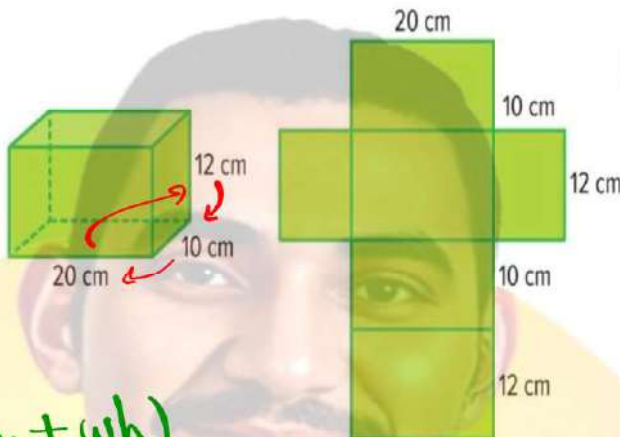
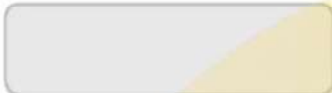
منصة طارق أكاديمي

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سلسلة الطارق في الرياضيات

3. Open Response Cody is painting the box shown for part of his art project. If he paints all of the surfaces, how many square centimeters will he paint? Use the net to find the surface area of the rectangular prism.



- A) 1120
B) 625
C) 6528
D) 3175

$$SA = 2(lw + lh + wh)$$

$$= 2(12 \times 10 + 10 \times 20 + 20 \times 12)$$

$$= 2(120 + 200 + 240)$$

$$= 2(560) = 1120$$

استاذ
طارق علي
في الرياضيات

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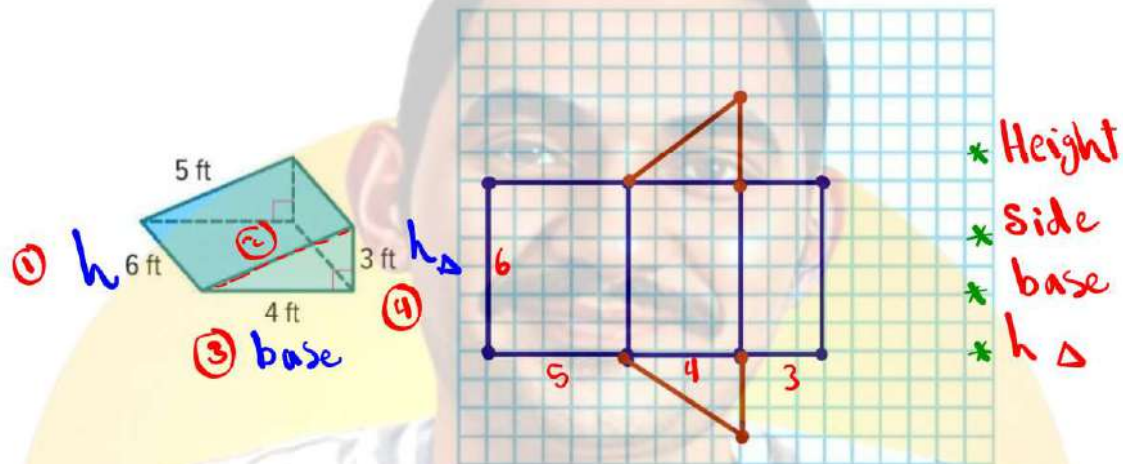
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سلسلة الطارق في الرياضيات

Q15-MCQ 9.3

1. Draw and label a net to represent the triangular prism. Let each grid unit represent 1 foot. (Example 1)



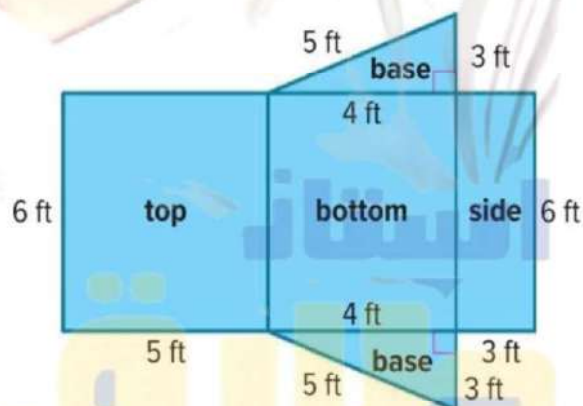
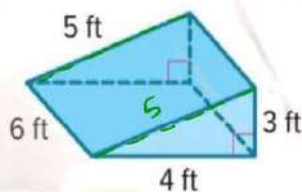
2. Use the net to find the surface area of the triangular prism. (Example 2)

(a) 135.2 ft^2

(b) 338 ft^2

(c) 84 ft^2

(d) 642.2 ft^2



$$SA = b h_{\Delta} + P_{\Delta} l$$

$$= 4 \times 3 + (3 + 4 + 5) \times 6$$

$$= 12 + 42 = 54 \text{ ft}^2$$

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3. **Open Response** Use the net to find the surface area of the triangular prism in square meters. (Example 3)

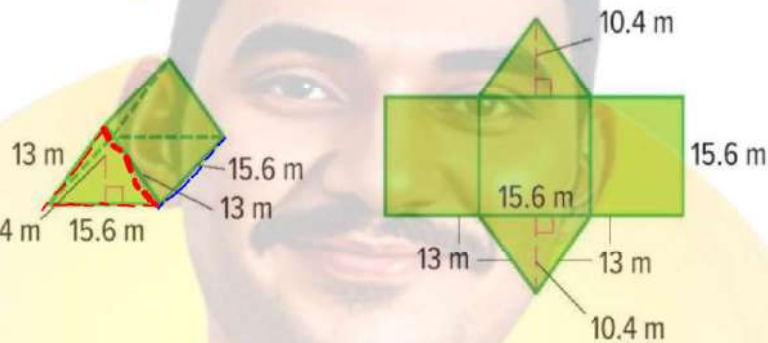
$$SA = bh + pl$$

(a) 811.2 m^2

(b) 338 m^2

(c) 84 m^2

(d) 642.2 m^2



$$SA = 15.6 \times 10.4 + (13 + 13 + 15.6) \times 15.6$$

↓

Round

$$16 \times 10 + 42 \times 16$$

$$160 + 672 = 832$$

الاجابة

Q16-MCQ 9.4

Triangular Pyramid

If $s = h$ same , If $s \neq h$

$$SA = 2bs$$

$$SA = \frac{1}{2}bh + \frac{3}{2}bs$$



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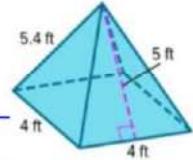
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سلسلة الطارق في الرياضيات

Question 1

Which of the following nets can be used to represent the triangular pyramid below?

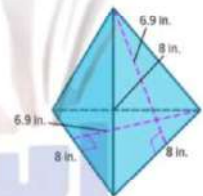


Square ←

A		C	
B		D	

Question 2

Which of the following nets can be used to represent the triangular pyramid below?



A		C	
B		D	



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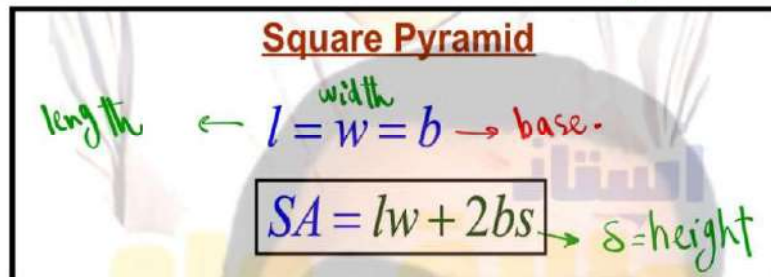
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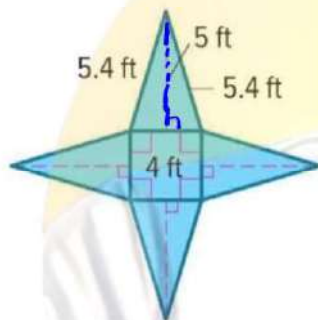
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سلسلة الطارق في الرياضيات



3. Use the net to find the surface area of the pyramid. (Example 3)



$$SA = lw + 2bs$$

$$= 4 \times 4 + 2 \times 4 \times 5$$

$$= 16 + 40$$

$$= 56 \text{ ft}^2$$

$$a. 106.79 \text{ ft}^2$$

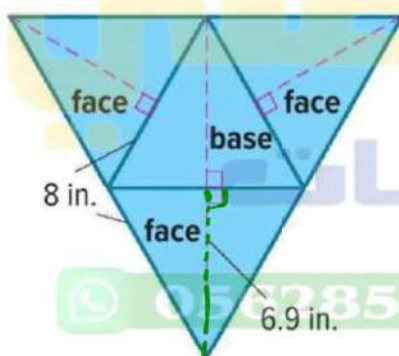
$$b. 56 \text{ ft}^2$$

$$c. 73.84 \text{ ft}^2$$

$$d. 161 \text{ ft}^2$$

4. Open Response Use the net to find the surface area of the pyramid in square inches. (Example 4)

$$SA = 2bs$$



$$2 \times 8 \times 6.9$$

$$= 16 \times 6.9$$

$$= 110.4$$

$$A) 110.4 \text{ in}^2$$

$$B) 123.6 \text{ in}^2$$

$$C) 151.2 \text{ in}^2$$

$$D) 27.6 \text{ in}^2$$



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Q17-MCQ 10.1

Example 1 Identify Statistical Questions

Determine whether or not each question is a statistical question.

How many states are there in the United States?

(a) Statistical question

☒ (b) Not a statistical question

How many states has the typical middle school student visited?

☒ (a) Statistical question

(b) Not a statistical question

In what year did Alaska become a state?

(a) Statistical question

☒ (b) Not a statistical question

In how many states has the typical adult in your neighborhood lived?

☒ (a) Statistical question

(b) Not a statistical question

What is the height of the tallest roller coaster in the world?

(a) Statistical question

☒ (b) Not a statistical question

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سلسلة الطارق في الرياضيات

1. How many continents are there?

(a) Statistical question

(b) Not a statistical question

2. How many continents has the average student visited?

each - Per
every
average
ly

(a) Statistical question

(b) Not a statistical question

3. How many sporting events did the average student attend last year?

(a) Statistical question

(b) Not a statistical question

4. In what year was the first World Series?

(a) Statistical question

(b) Not a statistical question

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سلسلة الطارق في الرياضيات

Q18-MCQ 10.1

5. Suppose you want to determine the number of siblings each of your classmates have. You survey them using the question *How many siblings do you have?* The responses were 1, 4, 2, 3, 0, 1, 0, 5, 1, 2, 2, 3, 0, 1, 2, 0, 1, 1, 6, and 2 siblings. Organize the data by completing the table and analyze the results. (Example 2)

Number of Siblings	Number of Responses
0-1	10
2-3	7
4-5	2
6 or more	1

6. You survey your classmates using the question *How many toppings do you like on an ice cream sundae?* The responses were 2, 3, 7, 4, 5, 5, 4, 4, 1, 2, 4, 3, 4, 3, 6, 0, 4, 5, 6, and 5 toppings. Organize the data by completing the table and analyze the results. (Example 2)

Number of Toppings	Number of Responses
0-1	2
2-3	5
4-5	10
6 or more	3

7. You survey your classmates using the question *How many sports do you play?* The responses were 2, 2, 1, 3, 1, 2, 4, 1, 2, 1, 3, 2, 2, and 2 sports. Organize the data by completing the table and analyze the results. (Example 2)

Number of Sports	Number of Responses
1	4
2	7
3	2
4	1

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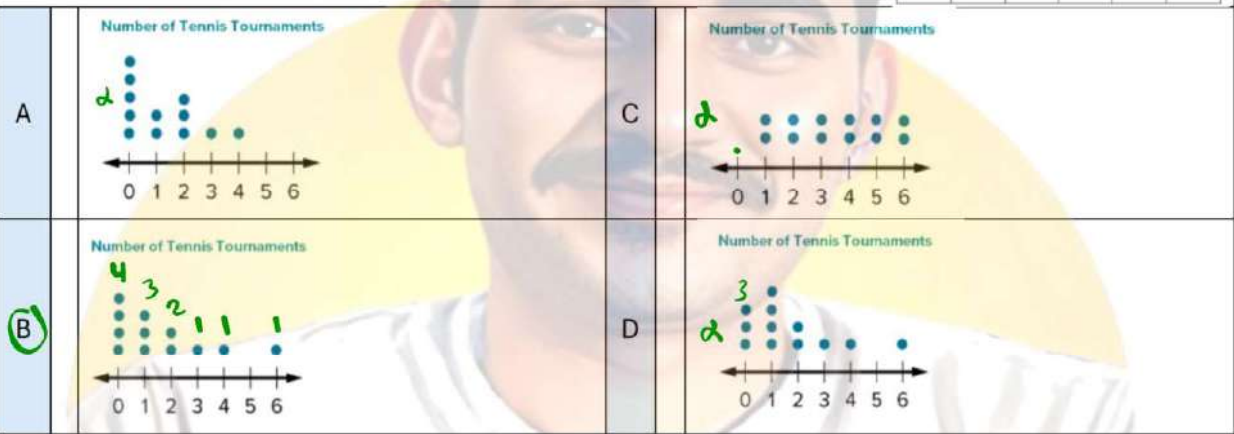
Q19-MCQ 10.2

Question 1

Chris surveyed the members of his tennis team by asking the question *in how many tennis tournaments have you played?* The results are shown in the table. Which dot plot accurately represents the data?

Number of Tennis Tournaments

0	2	1	4	0	1
1	0	3	2	6	0

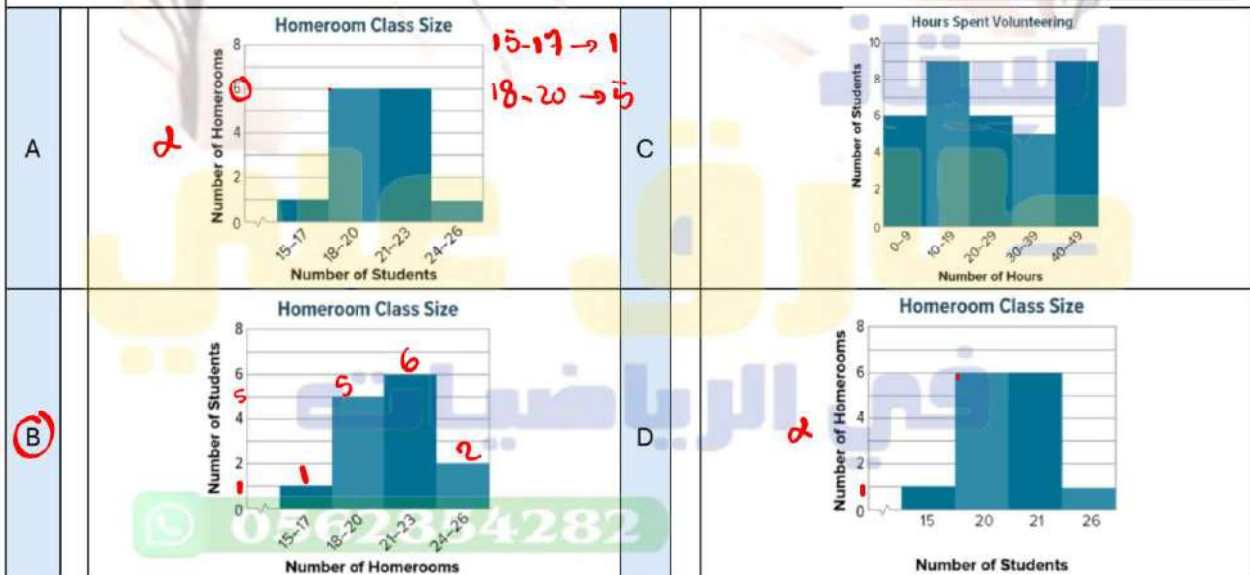


The table shows the results of asking a group of teachers the question *How many students are in your homeroom?*

Which of the following histograms accurately represents the data?

Homeroom Class Size

17	26	20	23	19	23	22
22	24	19	20	21	20	23



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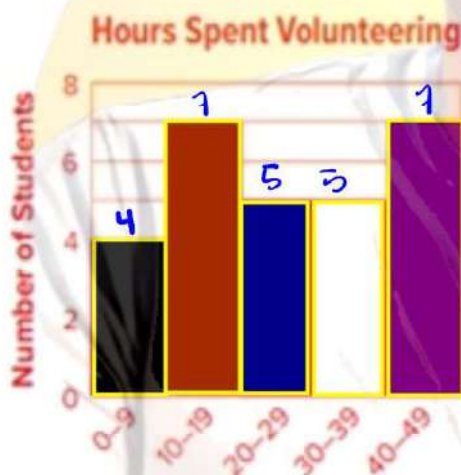


سلسلة الطارق في الرياضيات

3. The table shows the results of asking a group of students the statistical question *How many hours per month do you volunteer?* Construct a histogram to represent the data.

Hours Spent Volunteering						
48	30	21	10	1	40	19
10	5	40	39	20	9	40
31	45	29	40	18	49	31
24	32	15	0	15	27	12

Hours	Frequency
0-9	4
10-19	7
20-29	5
30-39	5
40-49	7



Petra surveyed the members of her dance class by asking the question *How many hours outside of class do you usually practice dance each week?* The results are shown in the table.

Which of the following dot plots accurately represents the data?

Number of Hours				
1	3	4	5	2
2	2	4	3	1
3	3	2	4	2

A	Number of Hours	C	Number of Hours
B	Number of Hours	D	Number of Hours



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سلسلة الطارق في الرياضيات

Q20-MCQ 10.3

Question 1

The number of cans collected over the weekend by each sixth grade homeroom was 57, 59, 60, 58, 58, and 56 cans. Find the mean number of cans collected.

A	57 cans	C	59 cans
☒ B	58 cans	D	60 cans

$$\text{mean} = \frac{57 + 59 + 60 + 58 + 58 + 56}{6} = \frac{348}{6} = 58$$

Question 2

Grace and her friends are comparing the number of pets they own. They have 1, 2, 0, 5, 1, 1, and 4 pets. Find the mean number of pets owned.

A	1.5 pets	C	2.5 pets
☒ B	2 pets	D	3 pets

$$\text{Mean} = \frac{1 + 2 + 0 + 5 + 1 + 1 + 4}{7} = \frac{14}{7} = 2$$

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Question 3

The amount Lucy earned babysitting each month for the past five months was \$225, \$280, \$240, \$180, and \$200. Suppose the mean for six months was \$220. How much did Lucy earn babysitting during the sixth month?

A	\$175	C	\$200
B	\$195	D	\$195

① Total = $225 + 280 + 240 + 180 + 200 = 1125$

② means $\times 6 = 220 \times 6 = 1320$

③ $1320 - 1125 = \underline{195}$

Question 4

The mean high temperature last week was 65°F . The high temperatures for Sunday through Friday were 68°F , 70°F , 73°F , 45°F , 68°F , and 71°F . What was the high temperature on Saturday?

A	60°F	C	62°F
B	61°F	D	64°F

① Total = $68 + 70 + 73 + 45 + 68 + 71 = 395$

② mean $\times 7 \text{ days} = 65 \times 7 = 455$

③ $455 - 395 = 60$



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سلسلة الطارق في الرياضيات

Q21-MCQ 10.3

5. The table shows the results of a survey about the number of E-mails sent in one day. Find the median number of E-mails sent per day. (Example 3)

Number of E-mails Sent Per Day						
20	24	22	27	21	27	20
27	22	23	20	22	24	26
23	26	27	22	27	20	25

A) 10

B) 11

C) 12

✓ D) 23

~~20, 20, 20, 20, 21, 22, 22, 22, 22, 23, 23, 24, 24, 25~~
~~26, 26, 27, 27, 27, 27, 27~~
 Median = 23

6. The table shows the number of students in each group on a school field trip. Find the median size of a group. (Example 3)

Number of Students in Each Group				
5	7	8	7	6
4	4	5	6	9
7	5	7	8	6
9	7	5	4	5

A) 10

✓ B) 6

C) 12

D) 23

~~4, 4, 4, 5, 5, 5, 5, 5, 6, 6, 6, 7, 7, 7, 7, 7,~~
~~8, 8, 9, 9~~
 Median = $\frac{6+6}{2} = 6$



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7. The table shows the number of points scored by a basketball team in each game last season. Find the median number of points scored. (Example 4)

Number of Points					
64	41	52	63	44	54
42	67	44	68	43	61

✓ A) 53

B) 11

C) 12

D) 23

~~41, 42, 43, 44, 44, 52, 54, 61, 63, 64, 67, 68~~

$$\text{Median} = \frac{52 + 54}{2} = \frac{106}{2} = 53$$

8. **Open Response** The number of points Seth has earned playing his favorite game is shown. Find the median of the data.

40, 28, 24, 37, 43, 26, 30, 36

A) 10

B) 11

C) 12

✓ D) 33

~~24, 26, 28, 30, 36, 37, 40, 43~~

$$\text{Median} = \frac{30 + 36}{2} = \frac{66}{2} = 33$$

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سلسلة الطارق في الرياضيات

Q22 -MCQ 10.4

What is the range of the data set? {2, 4, 5, 7, 8, 10}

$$\text{Big} - \text{small} = 10 - 2 = 8$$

A	6	C	10
B	8	D	12

Find Q_1 for the data set: {2, 1, 5, 4, 3, 8, 7, 6}

First quartile

A	2.5	C	4.5
B	3	D	6.5

* order

1, 2, 3, 4, 5, 6, 7, 8

* Count

8 numbers

$Q_1 \rightarrow \frac{1}{4} N$
 $Q_3 \rightarrow \frac{3}{4} N$

$$Q_1 = \frac{2+3}{2} = \frac{5}{2} = 2.5$$

Find Q_3 for the data set: {2, 1, 5, 4, 3, 8, 7, 6}

A	2.5	C	6.5
B	4.5	D	8

~~5~~, 6, 7, ~~8~~

$$Q_3 = \frac{6+7}{2} = \frac{13}{2} = 6.5$$



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The first quartile is 12 and the third quartile is 25. What is the interquartile range?

IQR

A	13	C	12
B	37	D	25

$$IQR = Q_3 - Q_1 = 25 - 12 = 13$$

Q23-MCQ 10.5

1. The table shows the number of sunny days in various U.S. cities in the last month. Find the mean absolute deviation. Explain what the mean absolute deviation represents.

(Example 1)

Number of Sunny Days in Various Cities Last Month			
15	27	10	19
24	21	28	16

A.3

B.5

C.6

D.7

MAD

$$\text{mean} = \frac{15 + 27 + 10 + 19 + 24 + 21 + 28 + 16}{8} = \frac{160}{8} = 20$$

* Big-small
(+)

$$* 20 - 15 = 5$$

$$* 27 - 20 = 7$$

$$* 20 - 10 = 10$$

$$* 20 - 19 = 1$$

$$* 24 - 20 = 4$$

$$* 21 - 20 = 1$$

$$* 28 - 20 = 8$$

$$* 20 - 16 = 4$$



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سلسلة الطارق في الرياضيات

$$* \text{MAD} = \frac{5+7+10+1+11+1+8+1}{8} = \frac{40}{8} = 5$$

2. The table shows the number of flowers sold by each sixth grade homeroom. Find the mean absolute deviation. Explain what the mean absolute deviation represents.

(Example 1)

Number of Flowers Sold				
75	89	80	145	85
60	92	104	90	100

A.13.4

✓ B.14.6

C.22.3

D.20

$$* \text{mean} = \frac{\text{Sum}}{10} = \frac{920}{10} = \boxed{92}$$

$$* 92 - 75 = 17, \quad 92 - 89 = 3, \quad 92 - 80 = 12$$

$$* 145 - 92 = 53, \quad 92 - 85 = 7, \quad 92 - 60 = 32$$

$$* 92 - 92 = 0, \quad 104 - 92 = 12, \quad 92 - 90 = 2$$

$$* 100 - 92 = 8$$

$$* \text{MAD} = \frac{\text{Sum}}{10} = \frac{146}{10} = \boxed{14.6}$$

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سلسلة الطارق في الرياضيات

3. The table shows the number of wins of two school baseball teams over the last five years. Find the mean absolute deviation for each team. Then compare the variations.

1.84

1.44

Number of Wins Per Season					
Bears	7	10	13	12	9
Saints	12	15	10	14	13

A	Bears: 1.84, Saints: 1.44; The Bears have greater variation.	C	Bears: 2.40, Saints: 2.40; The teams have the same variation.
B	Bears: 1.44, Saints: 1.84; The Saints have greater variation.	D	Bears: 3.20, Saints: 1.20; The Bears have greater variation.

Big of MAD → greater of variation

4. The table shows the number of canned goods each homeroom collected over seven days. Find the mean absolute deviation. Then compare the variations. Round to the nearest hundredth, if necessary. (Example 2)

Number of Canned Goods Collected							
Room 101	57	52	40	42	37	54	47
Room 102	51	17	42	40	46	74	31

6.29

12 ✓

A	Room 101: 6.29, Room 102: 12.00; Room 102 has greater variation.	C	Room 101: 7.00, Room 102: 7.00; The rooms have the same variation.
B	Room 101: 12.00, Room 102: 6.29; Room 101 has greater variation.	D	Room 101: 5.50, Room 102: 10.00; Room 101 has greater variation.

5. **Open Response** The table shows the number of Calories per serving of different snacks. What is the mean absolute deviation of the data set? Round to the nearest hundredth, if necessary.

Number of Calories					
61	42	52	27	35	23

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سلسلة الطارق في الرياضيات

A. 11.67 B. 12.3 C. 23.3 D. 13.2

Number of Calories					
61	42	52	27	35	23

$$* \text{Mean} = \frac{\text{Sum}}{6} = \frac{240}{6} = \boxed{40}$$

$$* 61 - 40 = 21 \quad * 42 - 40 = 2$$

$$* 52 - 40 = 12 \quad * 10 - 27 = 13$$

$$* 40 - 35 = 5 \quad * 40 - 23 = 17$$

$$* \text{MAD} = \frac{21 + 12 + 5 + 2 + 13 + 17}{6} = \frac{70 \div 2}{6 \div 2}$$

$$= \frac{35}{3} = 11 \frac{2}{3}$$

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سلسلة الطارق في الرياضيات

Q24-MCQ 10.6

1. Last week, Joakim spent 40, 25, 60, 30, 35, and 40 minutes practicing the piano. Identify any outliers in the data. (Example 1)

بغيره من باقي الأعداد

numbers is far away of rest of numbers.

Step 1: Find the quartiles and interquartile range.

List the data values from least to greatest.

25, 30, 35, 40, 40, 60

Find the quartiles and interquartile range.

median: 37.5

Q_1 : 30

Q_3 : 40

IQR: 10

A	25	C	40
B	60	D	There are no outliers.

Step 2: Determine the upper and lower limits for the outliers.

Upper Limit

$$Q_3 + (1.5 \cdot \text{IQR})$$

$$= 40 + (1.5 \cdot 10)$$

$$= 40 + 15$$

$$= 55$$

Lower Limit

$$Q_1 - (1.5 \cdot \text{IQR})$$

$$= 30 - (1.5 \cdot 10)$$

$$= 30 - 15$$

$$= 15$$

Step 3: Identify any outliers.

Any data values that are greater than 55 or less than 15 are outliers. So, the value of 60 minutes is an outlier.

ANSWER:

60 minutes

—

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سلسلة الطارق في الرياضيات

Last month, a basketball team scored 83, 84, 85, 87, 89, 88, 67, 79, and 81 points in their games. Identify any outliers in the data.

تقريب من 80

A	67	C	89
B	79	D	There are no outliers.

Abrianna sold 20, 23, 18, 4, 17, 21, 15, and 56 boxes of cookies after different football games. Identify any outliers in the data.

A	4 only	C	4 and 56
B	56 only	D	There are no outliers.

Last week a certain pet store had 52, 72, 96, 21, 58, 40, and 75 paying customers. Identify any outliers in the data.

A	21 only	C	21 and 96
B	96 only	D	There are no outliers.

The prices of trees that Sahana bought are \$46, \$39, \$40, \$45, \$44, \$68, and \$51. Calculate the mean and median with and without the outlier. Round to the nearest tenth, if necessary. Choose the measure that best describes the center.

median = 44.5 , mean = 44.2

A	With the outlier: mean = 47.6, median = 45; without the outlier: mean = 44.2, median = 44.5. The median best describes the center.	C	With the outlier: mean = 50.0, median = 45; without the outlier: mean = 46.0, median = 44.0. The median best describes the center.
B	With the outlier: mean = 45, median = 47.6; without the outlier: mean = 44.5, median = 44.2. The mean best describes the center.	D	With the outlier: mean = 44.2, median = 44.5; without the outlier: mean = 47.6, median = 45. The mean best describes the center.



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سلسلة الطارق في الرياضيات

The prices of backpacks are \$37, \$43, \$41, \$36, \$44, and \$70. Calculate the mean and median with and without the outlier. Round to the nearest tenth, if necessary. Choose the measure that best describes the center.

* Big without outlier is Best mean = 40.2
median = 41

A	With the outlier: mean = 42, median = 45.2; without the outlier: mean = 41, median = 40.2. The mean best describes the center.	C	With the outlier: mean = 50.2, median = 44; without the outlier: mean = 40.2, median = 41. The mean best describes the center.
B	With the outlier: mean = 40.2, median = 41; without the outlier: mean = 45.2, median = 42. The median best describes the center.	D	With the outlier: mean = 45.2, median = 42; without the outlier: mean = 40.2, median = 41. The median best describes the center.

The table shows the number of points scored by a football team.

Calculate the mean and median with and without the outlier. Round to the nearest tenth, if necessary. Choose the measure that best describes the center.

mean = 17.6 median = 18

Points Scored by a Football Team			
14	20	3	9
18	35	21	24
7	12	31	68

A	With the outlier: mean = 21.8, median = 19; without the outlier: mean = 17.6, median = 18. The median best describes the center.	C	With the outlier: mean = 24, median = 20; without the outlier: mean = 18, median = 19. The mean best describes the center.
B	With the outlier: mean = 19, median = 21.8; without the outlier: mean = 18, median = 17.6. The mean best describes the center.	D	With the outlier: mean = 17.6, median = 18; without the outlier: mean = 21.8, median = 19. The median best describes the center.

في الرياضيات

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سلسلة الطارق في الرياضيات

Q25 -MCQ 10.4

1. Cameron surveyed her friends about the number of apps they use. The responses were 15, 16, 18, 9, 18, 4, 19, 20, 17, and 36 apps. Use the **range** and **interquartile range** to describe how the data vary.

* order

* Range = Big - Small

* IQR = $Q_3 - Q_1$

a) Range = 32, IQR = 17.5

b) Range = 4, IQR = 32

c) Range = 32, IQR = 4

d) Range = 16, IQR = 4

4, 9, 15, 16, 17, 18, 18, 19, 20, 36

 Q_1 Q_3

$$* \text{Range} = 36 - 4 = 32$$

$$* \text{IQR} = 19 - 15 = 4$$

2. The table shows the number of hours different animals spend sleeping per day. Use the range and interquartile range to describe how the data vary. (Example 1)

Time Animals Spend Sleeping (h)					
12	20	16	11	4	2

a) Range = 18, IQR = 12

b) Range = 4, IQR = 32

c) Range = 32, IQR = 4

d) Range = 16, IQR = 4

2, 4, 11, 12, 16, 20

 Q_1 Q_3

$$* \text{Range} = 20 - 2 = 18$$

$$* \text{IQR} = 16 - 4 = 12$$

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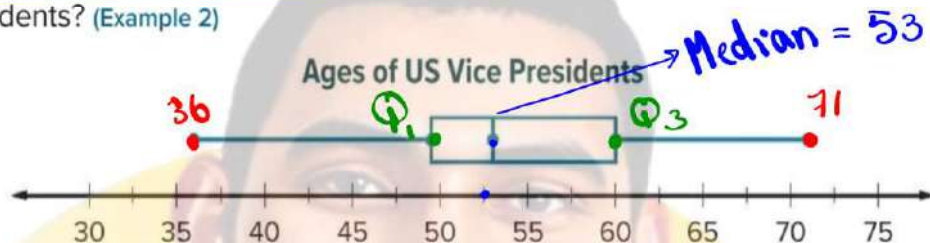
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سلسلة الطارق في الرياضيات

3. The box plot shows the ages of vice presidents when they took office.

Describe the distribution of the data. What does it tell you about the ages of vice presidents? (Example 2)



- a) The distribution with a median age of 53 and a range of 35. It shows that most vice presidents took office between 50 and 60 years old.
- b) The distribution with a median age of 50 and an IQR of 10. It shows that there are more vice presidents who took office at younger ages.
- c) The distribution with a median age of 53 and an IQR of 10. It shows that there are a few vice presidents who took office at older ages.
- d) The distribution is None with a median age of 55 and a range of 10. It shows that the ages of vice presidents are evenly distributed.

* Median = 53

* Range = $71 - 36 = 35$

* IQR = $Q_3 - Q_1 = 60 - 50 = 10$

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سلسلة الطارق في الرياضيات

4. The ages of children taking a hip-hop dance class are 10, 9, 9, 7, 12, 14, 14, 9, and 16 years old. Construct a box plot of the data. Then describe the distribution of the data. (Example 3)

~~7, 9, 9, 9~~, (10), ~~12, 14, 14, 16~~

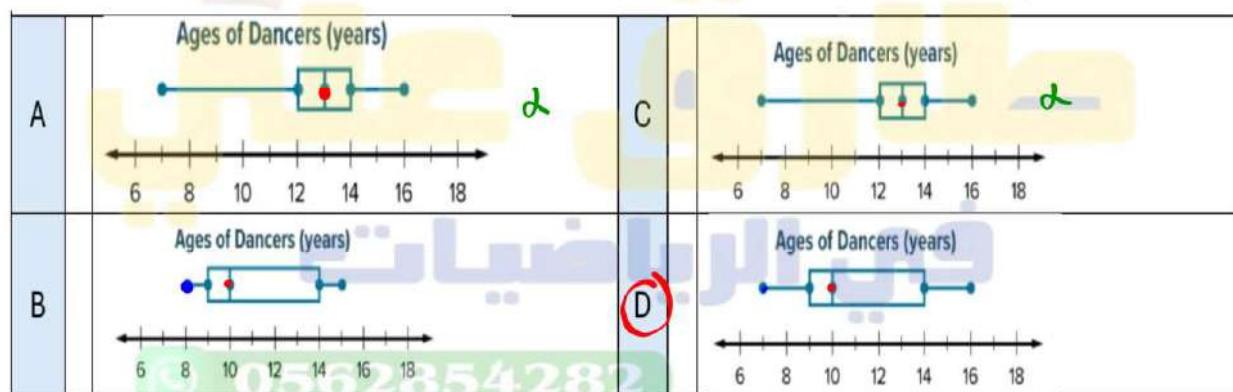
* lower = minimum = 7

* upper = maximum = 16

* Median = 10

* $Q_1 \rightarrow 7, 9, 9, 9 \Rightarrow \frac{9+9}{2} = 9$

* $Q_3 \rightarrow 12, 14, 14, 16 \Rightarrow \frac{14+14}{2} = 14$



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سلسلة الطارق في الرياضيات

5. Open Response The cost of tents on sale at a sporting goods store are \$66, \$72, \$78, \$69, \$64, \$70, \$67, \$72, and \$66. Use the range and interquartile range to describe how the data vary.

- a) Range = 14, IQR=8. Median =67
 b) Range = 12, IQR=6. Median =69
 ✓ c) Range = 14, IQR=6. Median =69
 d) Range = 78, IQR=64. Median =67

~~64~~, ~~66~~, ~~66~~, ~~67~~, 69, ~~70~~, ~~72~~, ~~72~~, ~~78~~

* Median = 69

* lower = minimum = 64

* upper = maximum = 78

$$* Q_1 = \frac{66 + 66}{2} = 66$$

$$* Q_3 = \frac{72 + 72}{2} = 72$$

$$* IQR = Q_3 - Q_1 = 72 - 66 = \underline{6}$$

$$* Range = 78 - 64 = \underline{14}$$



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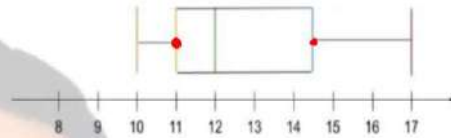
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The box plot represents a data set. What is the interquartile range (IQR) of the data?

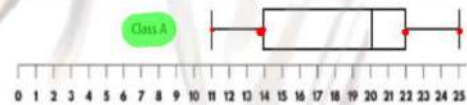


A	1.5	C	3.5
B	2	D	5

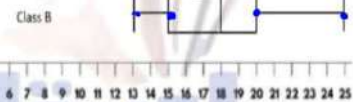
$$Q_1 = 11 \quad \text{and} \quad Q_3 = 14.5$$

$$IQR = Q_3 - Q_1 = 14.5 - 11 = 3.5$$

The quiz scores for two classes are represented in the box plots. Which statement is true?



$$A. \text{range} = 25 - 11 = 14, \quad IQR = 22 - 14 = 8$$



$$B. \text{range} = 25 - 13 = 12, \quad IQR = 20 - 15 = 5$$

A	There is greater variability in quiz scores for Class A because the range and interquartile range are greater than those of Class B.	C	There is greater variability in quiz scores for Class B because the range and interquartile range are less than those of Class A.
B	There is greater variability in quiz scores for Class B because the range and interquartile range are greater than those of Class A.	D	There is greater variability in quiz scores for Class A because the range and interquartile range are less than those of Class B.



if range and IQR are bigger is most variability.



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