تجميعة أسئلة شاملة وفق الهيكل الوزاري الجديد منهج ريفيل

المزيد من الملفات بحسب الصف العاشر المتقدم والمادة رياضيات في الفصل الأول	
1	تجميعة شاملة أسئلة الكتاب وفق الهيكل الوزاري الجديد منهج بريدج
2	تجميعة أسئلة الكتاب وفق الهيكل الوزاري الجديد منهج بريدج
3	تجميعة أسئلة وفق الهيكل الوزاري الجديد منهج ريفيل
4	نموذج تجميعة أسئلة وفق الهيكل الوزاري الجديد
5	الهيكل الوزاري الجديد منهج بريدج 2025

وزارة التربيـــــة والتعـــــليم

مدرسة الحصـن للتعليم الثانوي

أسئلة الهيكل

للصف العاشر متقدم (ريفيل)

رياضيـــــــــــــات

الفصل الأول 2025-2026

Cluster Manager
Dr. Samah Al Zuhli.

School Principal
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Math Teacher: Moustafa Abdelaziz

كلنا ناجحون بإذن الله

اسم الطالب/ ----------

الشعبة / ----------

Mr. Moustafa Abdelaziz
Al Hosn Secondary School

أسئلة الهيكل للصف العاشر متقدم
الفصل الأول للعام الدراسي 2025 – 2026

الأسئلة الموضـــــوعية

1	Add and subtract polynomials	27-34; 43-45	P 635-636

Find each sum or difference.

27. $(3c^3 - c + 11) - (c^2 + 2c + 8)$

28. $(z^2 + z) + (z^2 - 11)$

30. $(4a - 5b^2 + 3) + (6 - 2a + 3b^2)$

33. $(5n - 2p^2 + 2np) - (4p^2 + 4n)$

29. $(2x - 2y + 1) - (3y + 4x)$

34. $(4rxt - 8r^2x + x^2) - (6rx^2 + 5rxt - 2x^2)$

43. $(4x + 2y - 6z) + (5y - 2z + 7x) + (-9z - 2x - 3y)$

44. $(5a^2 - 4) + (a^2 - 2a + 12) + (4a^2 - 6a + 8)$

45. $(3c^2 - 7) + (4c + 7) - (c^2 + 5c - 8)$

2	Multiply polynomials by using the Distributive Property	18-23; 42-55	650-651

Find each product.

18. $(2y - 11)(y^2 - 3y + 2)$

21. $(x^2 + 5x - 1)(5x^2 - 6x + 1)$

23. $(6z^2 - 5z - 2)(3z^3 - 2z - 4)$

42. $(w + 4)(w^2 + 3w - 6)$

45. $(m + 3)(m^2 + 3m + 5)$

47. $(3b + 4)(2b^2 - b + 4)$

Simplify

48. $(m + 2)[(m^2 + 3m - 6) + (m^2 - 2m + 4)]$

49. $[(t^2 + 3t - 8) - (t^2 - 2t + 6)](t - 4)$

Find each product.

50. $(a - 2b)^2$

51. $(3c + 4d)^2$

53. $(2r - 3t)^3$

55. $(4y + 3z)(4y - 3z)^2$

3	Trinomials of the form $ax^2 + bx + c$	21-36; 45-50; 65-70	P672-673

Factor each polynomial, if possible. If the polynomial cannot be factored using integers, write prime.

21. $5x^2 + 34x + 24$

22. $2x^2 + 19x + 24$

23. $4x^2 + 22x + 10$

24. $4x^2 + 38x + 70$

25. $2x^2 - 3x - 9$

26. $4x^2 - 13x + 10$

27. $2x^2 + 3x + 6$

28. $5x^2 + 3x + 4$

29. $12x^2 + 69x + 45$

30. $4x^2 - 5x + 7$

31. $3x^2 - 8x + 15$

34. $2t^2 + 9t - 5$

33. $2x^2 + 3x - 6$

36. $4h^2 + 8h - 5$

35. $2y^2 + y - 1$

Factor each polynomial, if possible. If the polynomial cannot be factored using integers, write prime.

45. $2x^2 + 5x + 2$

48. $2t^2 - 11t + 15$

47. $3g^2 - 7g + 2$

50. $4b^2 + 15b - 4$

65. $-6x^2 - 23x - 20$

66. $-4x^2 - 15x - 14$

67. $-5x^2 + 18x + 8$

68. $-6x^2 + 31x - 35$

69. $-4x^2 + 5x - 12$

70. $-12x^2 + x + 20$

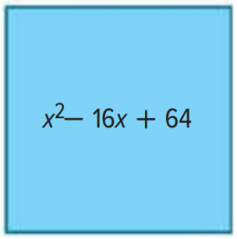
4	Factor Factorize binomials that are the difference of squares	15-17; 42-44	P:679-680

15) A ticketing company for sporting events analyzes the ticket purchasing patterns. The expression $9a^2 - 4b^2$ is developed to help officials calculate the likely number of people who will buy tickets for a certain sporting event. Factor the expression.

16) A half-court basketball court is a square of pavement with an area represented by $x^2 - 25$. Factor the expression.

17. DECORATING Marvin saw a rug in a store that he would like to purchase. It has an area represented by the expression shown on the rug. He cannot remember the length and width, but he remembers that the length and the width were the same.

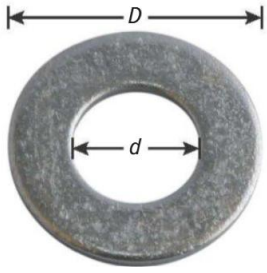
a. Factor the expression that represents the area of the rug.



b. What do the factors in the factored expression represent?

43) The area of a rectangular parking lot is represented by the expression $a^2 - 25$, where the length is longer than the width. Factor the expression to determine the possible dimensions of the length and width of the parking lot. If the length of the parking lot is 105 yards, what is the width of the parking lot?

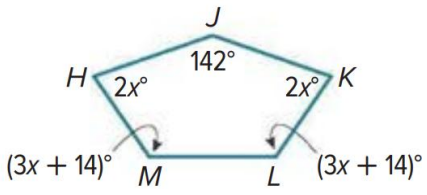
44) Research the dimensions of the outside diameter and inside diameter of metal washers. Write an expression for the surface area of the top of a metal washer with outside diameter D and inside diameter d. Factor your expression. Then use your expression and the dimensions you researched to find the surface area of the top of a metal washer.



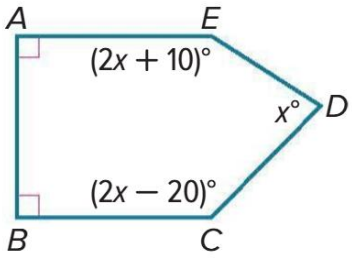
5	Find and use the sum of the measures of the interior angles of a polygon	Example 1, 1-4	P59, 63

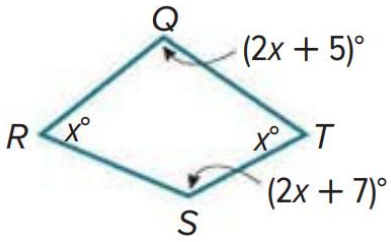
Example

Find the measure of each interior angle of pentagon HJKLM



Find the measure of each interior angle.

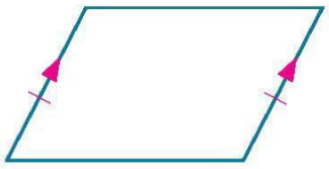




6	Recognize the conditions that ensure a quadrilateral is a parallelogram	1-6	P79

Determine whether each quadrilateral is a parallelogram. Justify your answer.

1.



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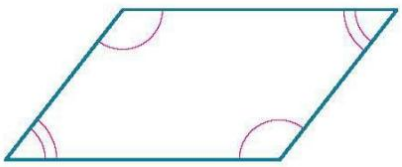

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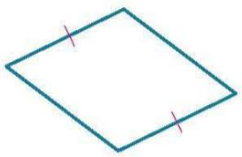

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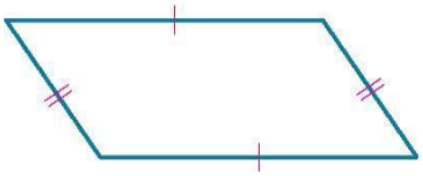

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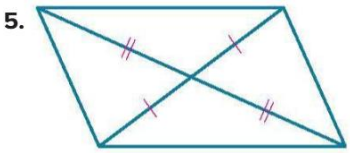

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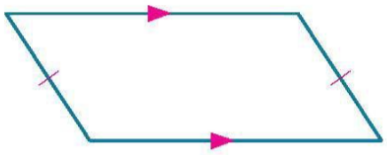
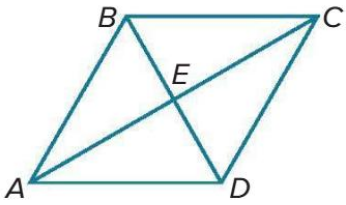


7	Recognize and apply properties of rhombi and squares	1-8	P 95, 97

Quadrilateral ABCD is a rhombus. Find each value or measure.



1. If $m\angle ABD = 60°$, find $m\angle BDC$.

2. If $AE = 8$, find AC.

3. If $AB = 26$ and $BD = 20$, find AE.

4. Find $m\angle CEB$.

5. If $m\angle CBD = 58°$, find $m\angle ACB$.

6. If $AE = 3x - 1$ and $AC = 16$, find x.

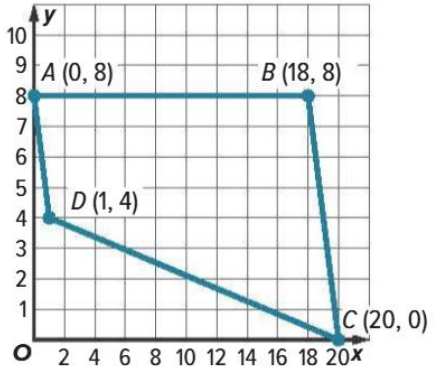
7. If $m\angle CDB = 6y°$ and $m\angle ACB = (2y + 10)°$, find the value of y.

8. If $AD = 2x + 4$ and $CD = 4x - 4$, find the value of x.

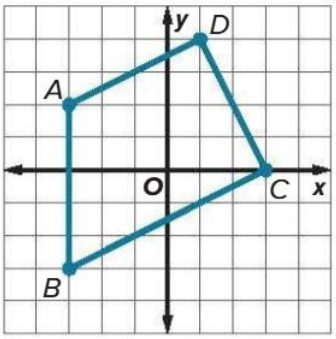
8	Recognize and apply the properties of trapezoids, including the medians of trapezoids	Example 5; 11-12	P102; 106

Example 5

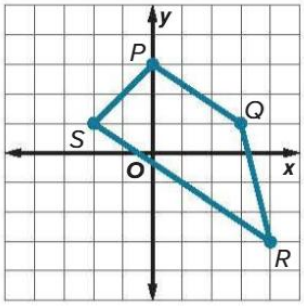
In trapezoid *ABCD*, $\overline{AD} \parallel \overline{BC}$. Find the endpoints of the midsegment.



11. In trapezoid *ABCD*, $\overline{AD} \parallel \overline{BC}$. Find the endpoints of the midsegment.



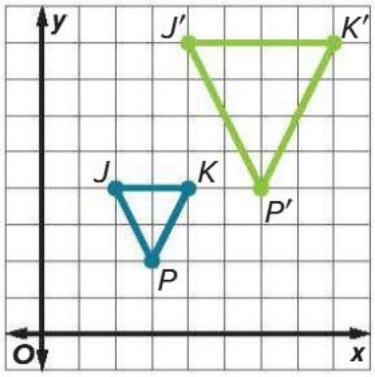
12. In trapezoid *PQRS*, $\overline{PQ} \parallel \overline{SR}$. Find the endpoints of the midsegment.



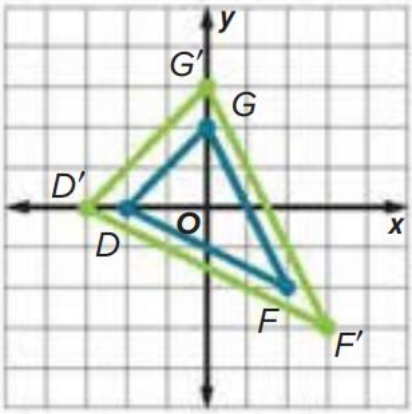
9	Find the scale factor of a dilation	10-12; 17-18	P 120

Find the scale factor of the dilation

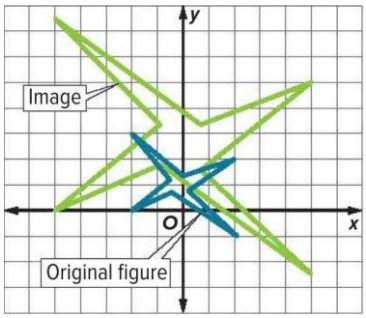
10. $\triangle J'K'P'$ is the image of $\triangle JKP$.



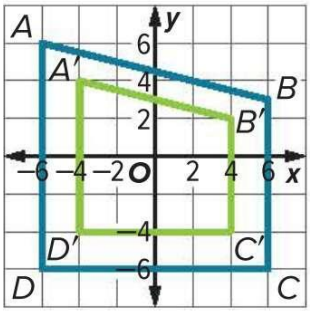
11. $\triangle D'F'G'$ is the image of $\triangle DFG$.



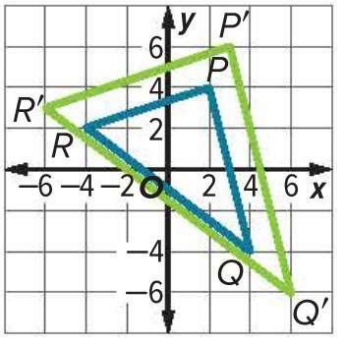
12. Tyrone drew a logo and a dilation of the same logo on the coordinate plane. What is the scale factor of the dilation?



17. $A'B'C'D'$ is the image of $ABCD$.



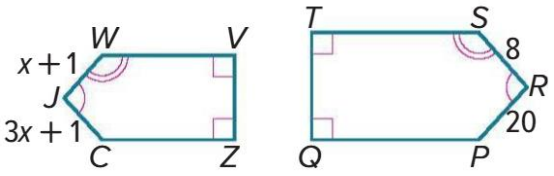
18. $\triangle P'Q'R'$ is the image of $\triangle PQR$.



10	Solve problems using the properties of similar polygons	11-14; 19-20	P 128-129

Each pair of polygons is similar. Find the value of x.

11.



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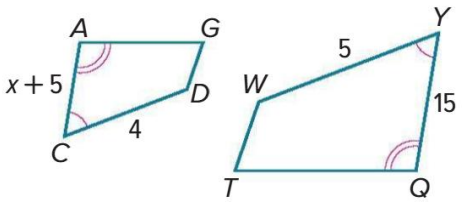
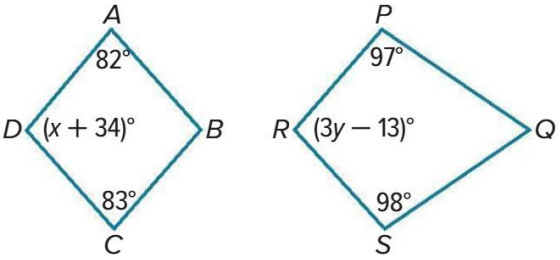
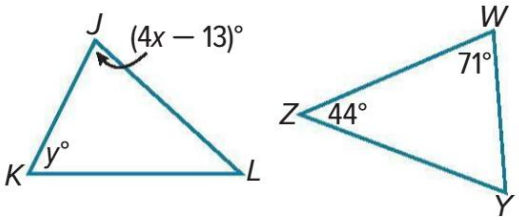


Find the value of x and y for each pair of polygons.

19. *ABCD* ~ *QSRP*



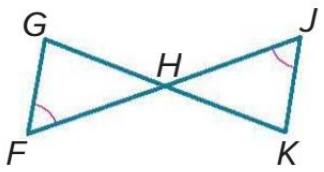
20. △*JKL* ~ △*WYZ*



11	Identify similar triangles using the AA Similarity Postulate and the SSS and SAS Similarity Theorems	1-6; 1-4	P 133; 139

Determine whether each pair of triangles is similar. Explain your reasoning.

1.



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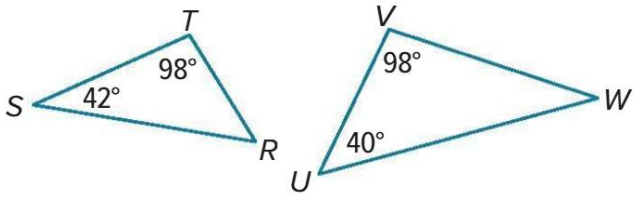

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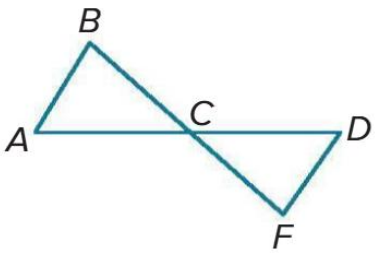

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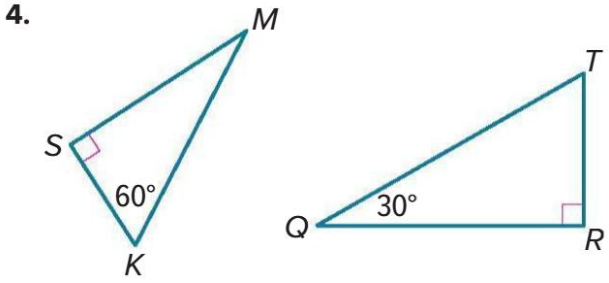

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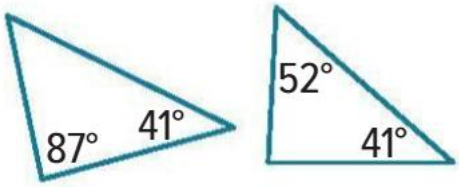

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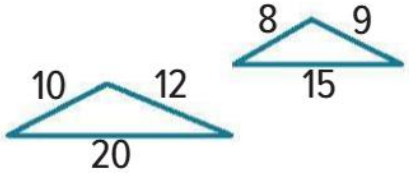
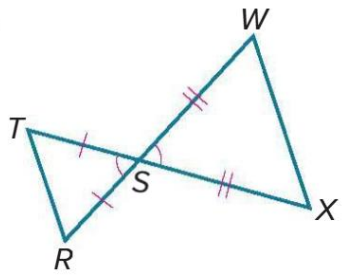


Determine whether each pair of triangles is similar. Explain your reasoning

1.



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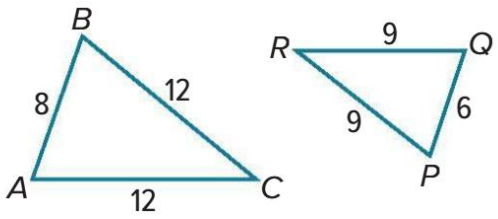

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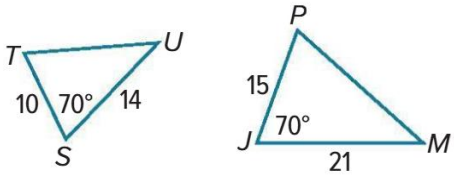

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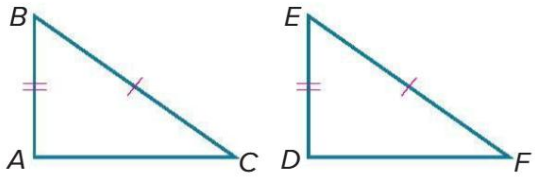
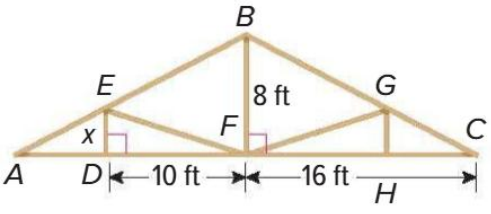


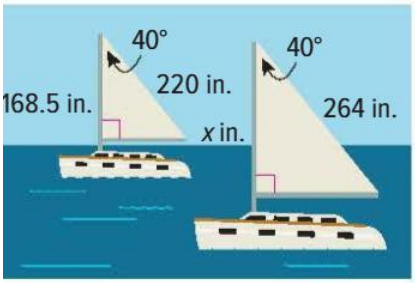
12	Use similar triangles to solve problems	9-12	P139-140

9. ROOFING The skeleton of a roof is shown. Find the value of x such that triangles DEF and FBC in the outline of the roof are similar.



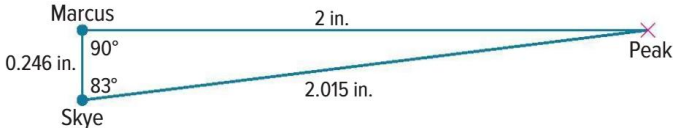
10. RADIO A radio tower casts an 8-foot-long shadow at the same time that a vertical yardstick casts a shadow one-half inch long. If the triangles formed by the objects and their shadows are similar, how tall is the radio tower?

11. SAILING The two sailboats shown are participating in a regatta. If the sails are similar, what is the value of x?



12. MOUNTAIN PEAKS Marcus and Skye want to estimate how far a mountain peak is from their houses. After taking some measurements, they construct a diagram. The actual distance between arcus and Skye's houses is $1\frac{1}{2}$ miles.

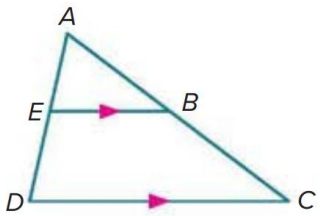
a. What is the actual distance from Marcus's house to the peak of the mountain? Round your answer to the nearest tenth of a mile.



b. What is the actual distance from Skye's house to the peak of the mountain? Round your answer to the nearest tenth of a mile.

13	Use proportional parts with parallel lines	1-4	P145

Use the figure at the right.

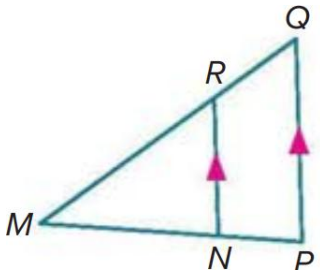


1. If AB = 6, BC = 4, and AE = 9, find ED.

2. If AB = 12, AC = 16, and ED = 5, find AE

Determine whether $\overline{NR} \parallel \overline{PQ}$. Justify your answer.

3. PM = 18, PN = 6, QM = 24, and RM = 16

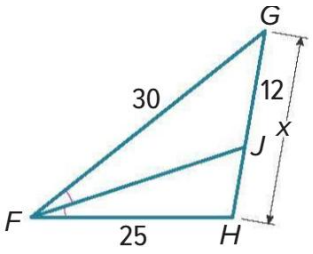


4. 4. QM = 31, RM = 21, and PM = 4PN

14	Recognize and use proportional relationships of corresponding angle bisectors, altitudes medians of similar triangles	Example 3; 8-9	P152-153

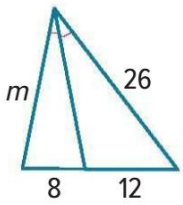
Example

Find the value of x



Find the value of each variable to the nearest tenth.

8.



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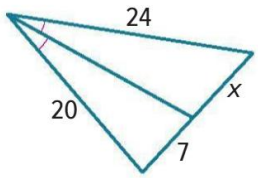


15	Solve problems involving relationships between parts of a right triangle and the altitude to its hypotenuse.	1-6	165

Find the geometric mean between each pair of numbers.

1. 4 and 6

2. $\frac{1}{2}$ and 2

3. 4 and 25

4. 12 and 20

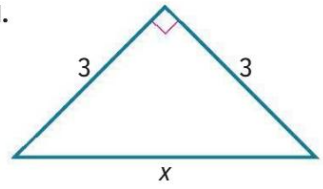
5. 3 and 24

6. 17 and 3

16	Use the Converse of the Pythagorean Theorem	1-12	P171

Find the value of x

1.



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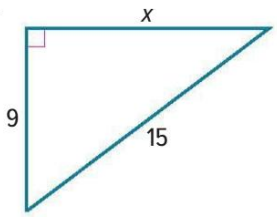

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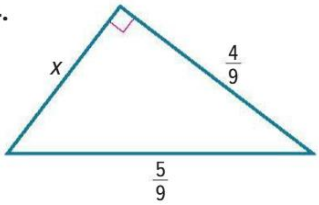

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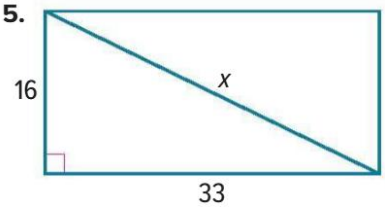

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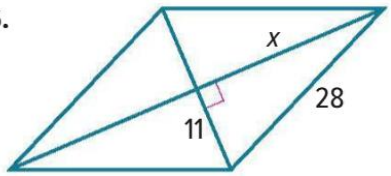
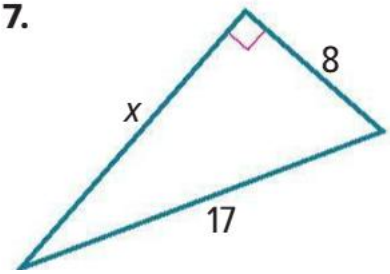


Use a Pythagorean Triple to find the value of x

7.



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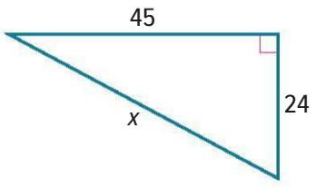


17	Find the distance between two points on the coordinate plane	7-10; 19-24	P177-178

Determine the distance between each pair of points.

7. $F(0, 0, 0)$ and $G(2, 4, 3)$

9. $A(4, -6, 0)$ and $B(1, 0, 1)$

10. $C(8, 7, -2)$ and $D(0, 0, 0)$

Determine the distance between each pair of points. Then determine the coordinates of the midpoint M of the segment joining the pair of points.

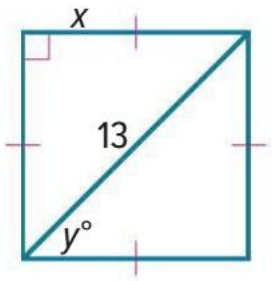
19. $P(-5, -2, -1)$ and $Q(-1, 0, 3)$

24. $S(6\sqrt{3}, 4, 4\sqrt{2})$ and $T(4\sqrt{3}, 5, \sqrt{2})$

18	Use the properties of 30°, 60°, 90° triangles	33-38	P185

Find the values of x and y.

33.



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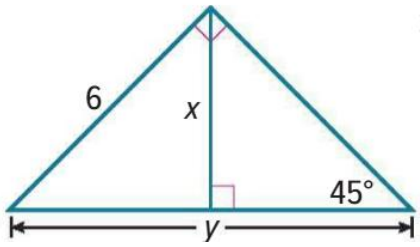

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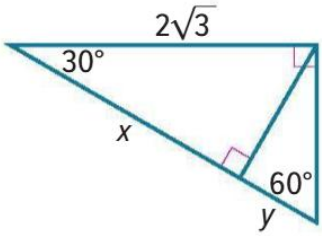

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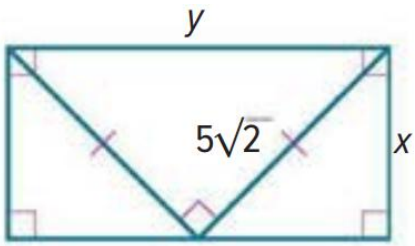

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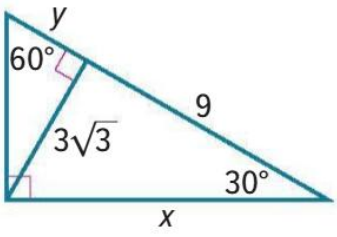

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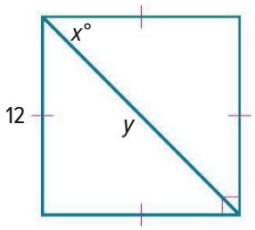
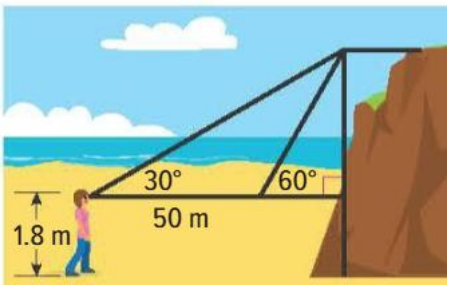


19	Use trigonometric ratios to find side lengths and angle measures of right triangles	9-12;23-26	P200-202

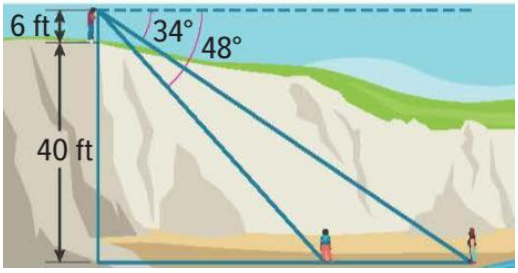
9. GARAGE To estimate the height of a garage, Carlos sights the top of the garage at a 42° angle of elevation. He then steps back 20 feet and sights the top of the garage at a 10° angle. If Carlos is 6 feet tall, how tall is the garage to the nearest foot?

10. CLIFF Sarah stands on the ground and sights the top of a steep cliff at a 60° angle of elevation. She then steps back 50 meters and sights the top of the cliff at a 30° angle. If Sarah is 1.8 meters 30° 60° tall, how tall is the cliff to the nearest meter?



11. BALLOON The angle of depression from a hot air balloon to a person on the ground is 36°. When the person steps back 10 feet, the new angle of depression is 25°. If the person is 6 feet tall, how far above the ground is the hot air balloon to the nearest foot?

12. INDIRECT MEASUREMENT Mr. Dominguez is standing 6 ft 34° on a 40-foot ocean bluff near his home. He can see 48° his two friends on the beach below. If his line of sight is 6 feet above the ground and the angles of 40 ft depression to his friends are 34° and 48°, how far apart are his friends to the nearest foot?

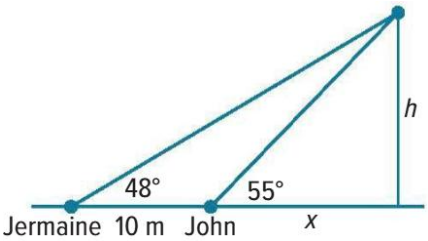


23. USE ESTIMATION A hiker dropped his backpack over one side of a canyon onto a ledge below. Because of the shape of the cliff, he could not see exactly where it landed. A park ranger is located on the other side of the canyon, at the same height, 113 feet away from the hiker. The ranger sights the backpack at an angle of depression of 32°.

a. Explain how you can use angles of elevation and depression to estimate the distance that the backpack fell.

b. About how far down did the backpack fall to the nearest foot?

24. USE A MODEL Jermaine and John are standing 10 meters apart watching a helicopter hover above the ground.



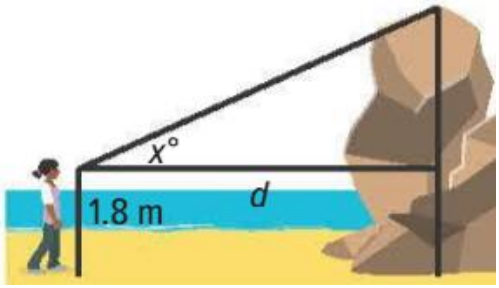
a. Find two different expressions that can be used to find h, the height of the helicopter.

b. Equate the two expressions you found for part a to solve h for x. Round your answer to the nearest hundredth.

c. How high above the ground is the helicopter? Round 48° 55° your answer to the nearest hundredth.

25. USE A SOURCE Go online to research the Sandia Peak Tramway in New Mexico. If you were to stand at the top terminal of Sandia Peak Tramway and look at the base of the second tower along the tramway route, what would be the angle of depression for your line of sight? Round your answer to the nearest tenth of a degree.

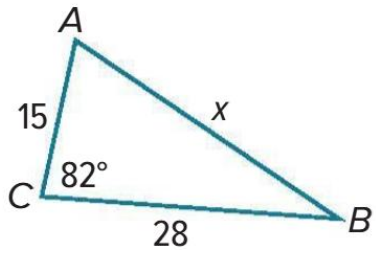
26. REGULARITY A geologist wants to determine the height of a rock formation. She stands d meters from the formation and sights the top of the formation at an angle of x°, as shown. The geologist's height is 1.8 m. Write a general formula that the geologist can use to find the height h of the rock formation if she knows the values of d and x.



20	Use the Law of Cosines to solve triangles	1-6; 9-14	P 215

Find the value of x to the nearest tenth for side lengths and nearest degree for angle measures.

1.



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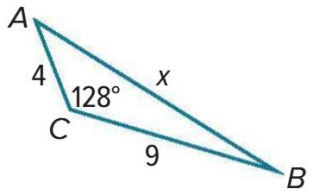

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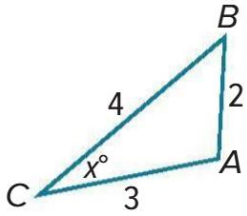
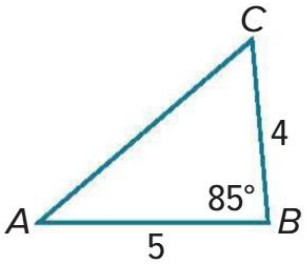


Solve each triangle. Round side lengths to the nearest tenth and angle measures to the nearest degree

9.



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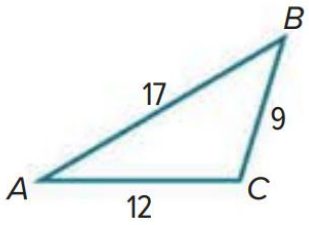

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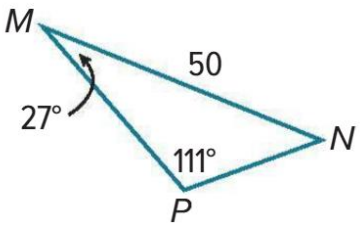

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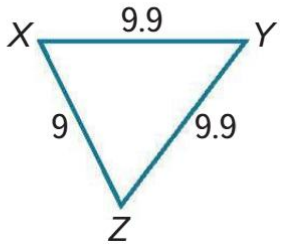


الأسـئلة المـقاليـة

21	Factor perfect square trinomials	60-70	P 682

60. Debony claims the expression $9x^2 + 50x + 25$ is a perfect square trinomial. Is she correct? If she is incorrect, show how the expression can be changed so that it is a perfect square.

61. Find a value for m that will make the expression $4x^2 - 44x + m$ a perfect square. Then use the value to factor the expression completely.

62. Elizabeth and Lorenzo are factoring an expression. Is either of them correct? Explain your reasoning.

Elizabeth

$16x^4 - 25y^2 =$

$(4x - 5y)(4x + 5y)$

Lorenzo

$16x^4 - 25y^2 =$

$(4x^2 - 5y)(4x^2 + 5y)$

63. PERSEVERE Factor and simplify $9 - (k + 3)^2$, a difference of squares.

64. ANALYZE Write and factor a binomial that is the difference of two perfect squares and that has a greatest common factor of 5mk.

65. ANALYZE Determine whether the following statement is true or false. Give an example or counterexample to justify your answer. All binomials that have a perfect square in each of the two terms can be factored

66. CREATE Write a binomial in which the difference of squares pattern must be repeated to factor it completely. Then factor the binomial.

67. WRITE Describe why the difference of squares has no middle term.

68. WHICH ONE DOESN'T BELONG? Identify the trinomial that does not belong. Explain.

$4x^2 - 36x + 81$	$25x^2 + 10x + 1$	$4x^2 + 10x + 4$	$9x^2 - 24x + 16$

69. WRITE Explain how to determine whether a trinomial is a perfect square trinomial.

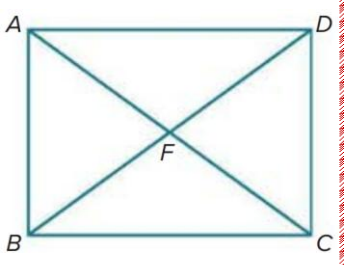
70. PERSEVERE Use the difference of squares to factor and simplify the expression

$$121x^2y^6z^4 - 16y^2z^2.$$

22	Recognize and apply properties of rectangles.	9-14	P87

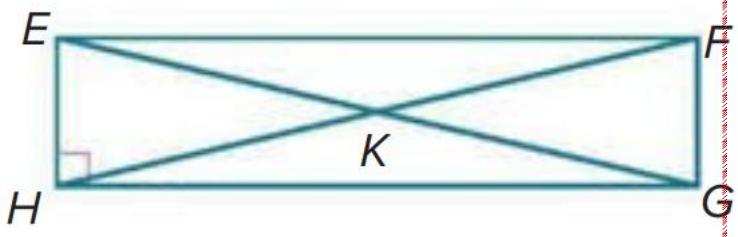
9. Quadrilateral ABCD is a rectangle. If m ∠ADB = (4x + 8) ° and m ∠DBA = (6x + 12) °.

Find the value of x.



Quadrilateral EFGH is a rectangle. Use the given information to find each measure.

10. If m ∠FEG = 57°, find m ∠GEH.



11. If m ∠HGE = 13°, find m ∠FGE

12. If FK = 32 feet, find EG.

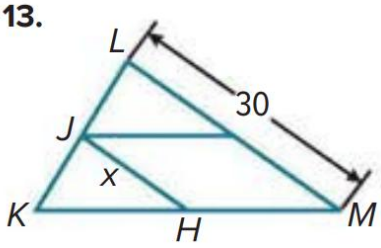
13. Find m ∠HEF + m ∠EFG.

14. If EF = 4x - 6 and HG = x + 3, find EF.

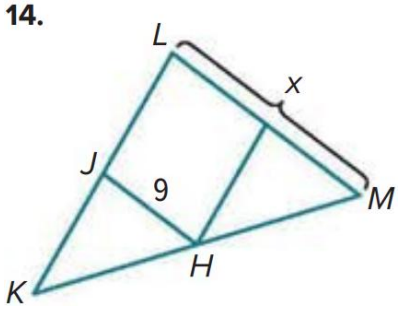
23	Solve problems and prove theorems by using the Triangle Midsegment Theorem and its corollaries.	13-15; 24-25	P146;148
	Solve problems and prove theorems by using the Triangle proportionalit	11-12; 21-22	P 146-147

$\overline{HJ}$is a midsegment of ΔKLM. Find the value of x.

13.



14.



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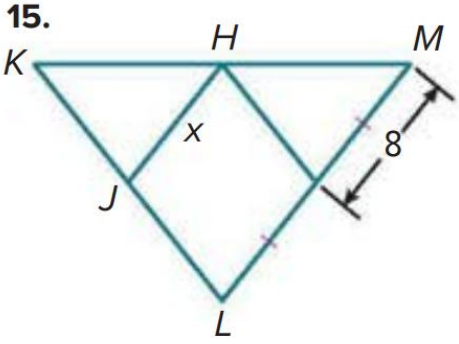
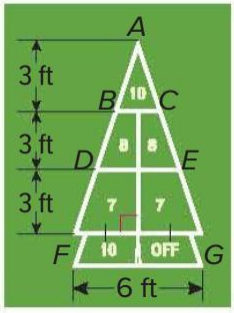
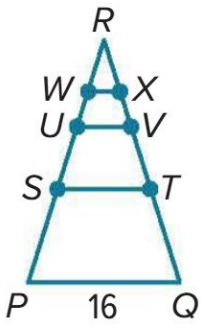


24. SHUFFLEBOARD A crew is laying out a shuffleboard court using the plan shown at the right. Explain how they can find the lengths of $\overline{AB}$, $\overline{BD}$ and $\overline{DF}$ to the nearest tenth of a foot



25. In $\triangle PQR$, the length of $\overline{PQ}$ is 16 units. A series of midsegments are drawn such that $\overline{ST}$ is the midsegment of $\triangle PQR$, $\overline{UV}$ is the midsegment of $\triangle STR$, and $\overline{WX}$ is the midsegment of $\triangle UVR$.



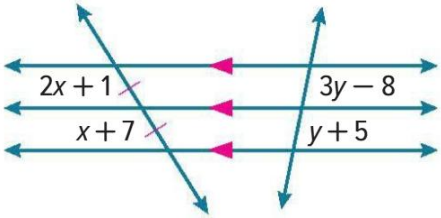
a. What is the length of each midsegment?

$ST =$ $UV =$ $WX =$

b. What would be the measure of midsegment $\overline{YZ}$ of Δ WXR?

Find the values of x and y.

11.



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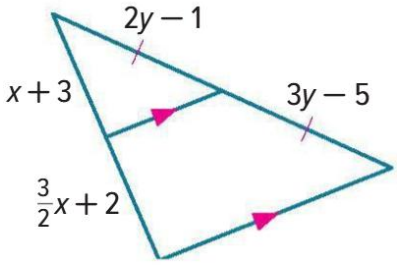
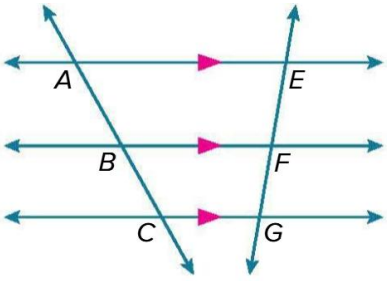


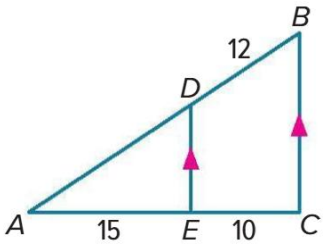
21. **PROOF** Write a paragraph proof

Given: $\overleftrightarrow{AE} \parallel \overleftrightarrow{BF} \parallel \overleftrightarrow{CG}$

Prove: $\frac{AB}{BC} = \frac{EF}{FG}$



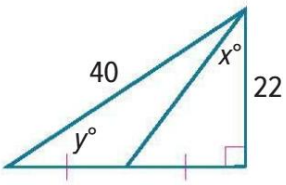
22. REGULARITY In the figure, $\overline{DE} \parallel \overline{BC}$, $BD = 12$, $EC = 10$, and $AE = 15$. Explain how to find the length of $\overline{AD}$.



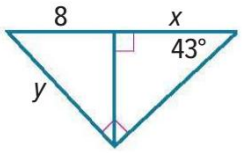
24	Use trigonometric ratios to find side lengths and angle measures of right triangles	36-44	P 194

Find the values of x and y. Round to the nearest tenth.

36.



37.

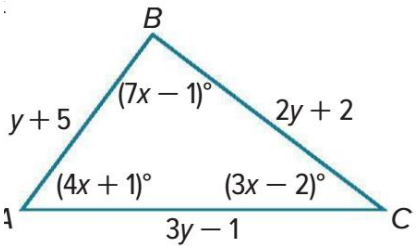


38. Explain how you can use only the table at the right to find the value of cos 20°.

$m\angle A$	sin A
65°	0.9063
70°	0.9397
75°	0.9659
80°	0.9848
85°	0.9962

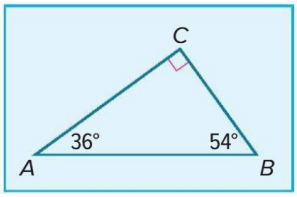
39. Lakasha and Treyvon were both solving the same trigonometry problem. However, after they finished their computations, Lakasha said the answer was 52 sin 27° and Treyvon said the answer was 52 cos 63°. Could they both be correct? Explain your reasoning.

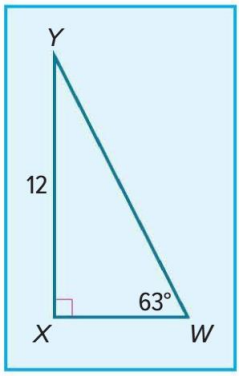
40. PERSEVERE Solve ΔABC. Round each measure to the nearest whole number.



41. Are the values of sine and cosine for an acute angle of a right triangle always less than 1? Explain.

42. If the directions say to Solve the right triangle, then which of the triangles shown does not belong? Justify your conclusion





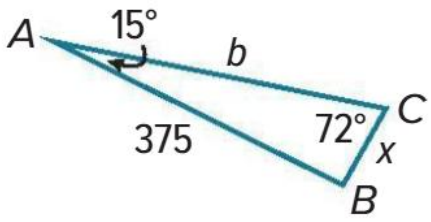
43. WRITE Explain how you can use ratios of the side lengths to find the angle measures of the acute angles in a right triangle.

44. Draw a right triangle with a tangent ratio of $\frac{3}{2}$ for one of the acute angles. Then find the measure of the other acute angle to the nearest tenth of a degree.

25	Use the Law of Sines to solve triangles	1-12	P 207

Find the value of x to the nearest tenth.

1.



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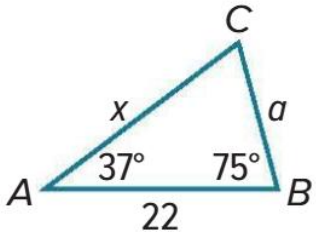

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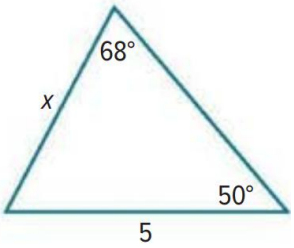

12.