2013 Spring Exam Review - Sample questions, does not include CH 12 which will be on exam.

1 Mr. Jones has taken a survey of college students and found that 1 out of 6 students are liberal arts majors. If a college has 7000 students, what is the best estimate of the number of students who are liberal arts majors?

- Ⓐ 1167
- Ⓑ 117
- Ⓒ 210
- Ⓓ 42,000

2 A worker in an assembly line takes 6 hours to produce 25 parts. At that rate, how many parts can she produce in 24 hours?

- Ⓐ 200 parts
- Ⓑ 5 parts
- Ⓒ 100 parts
- Ⓓ 600 parts

3 Assume the exchange rate of Canadian dollars to American dollars is 1 to 0.77. If a stove costs $529.50 in Canadian dollars, then what would its price be in American dollars?

- Ⓐ $407.72
- Ⓑ $452.50
- Ⓒ $687.66
- Ⓓ $506.50

4 While attending a school carnival, you estimate the ratio of children to adults as $2 : 1$. If there are 180 people at the carnival, about how many children are in attendance?
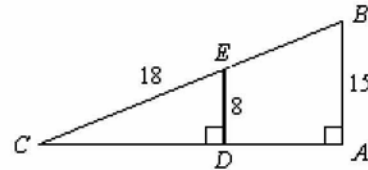
- Ⓐ about 150
- Ⓑ about 120
- Ⓒ about 180
- Ⓓ about 60

5 The geometric mean of 5 and 20 is _____.

- Ⓐ 8.66
- Ⓑ 7.5
- Ⓒ 3
- Ⓓ 10

6 Given that $\dfrac{ED}{BA} = \dfrac{EC}{BC}$, find BC to the nearest tenth. The figure is not drawn to scale.
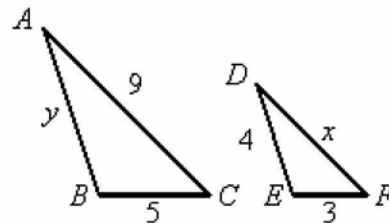

- Ⓐ 33.8
- Ⓑ 15.8
- Ⓒ 2.3
- Ⓓ 31.6

7 If two polygons are SIMILAR, then the corresponding angles must be _____.

- Ⓐ complementary
- Ⓑ supplementary
- Ⓒ congruent
- Ⓓ linear pairs

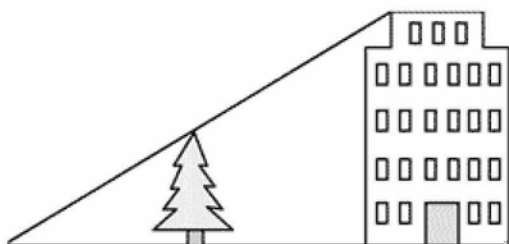**8** Given that $\triangle ABC \sim \triangle DEF$, solve for x and y.

- Ⓐ $x = 6.4$, $y = 6.67$
- Ⓑ $x = 6.4$, $y = 7.67$
- Ⓒ $x = 5.4$, $y = 7.67$
- Ⓓ $x = 5.4$, $y = 6.67$

9 The perimeter of ΔPQR is 45, $PQ = 15$, ΔPQR $\sim \Delta STU$, and $ST = 25$. What is the perimeter of ΔSTU?

Ⓐ 8.3

Ⓑ 25.3

Ⓒ 37.5

Ⓓ 75

10 Amy wants to find the height of a building. She stands 130 feet away from the building. There is a tree 37 feet in front of her which she knows is 17 feet tall. How tall is the building? (Round to the nearest foot.)
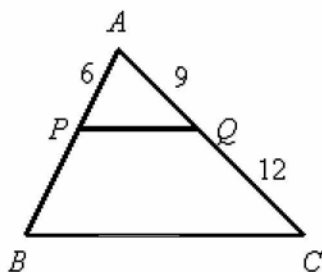

Ⓐ 30 ft.

Ⓑ 40 ft.

Ⓒ 50 ft.

Ⓓ 60 ft.

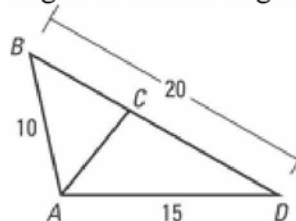**11** If the corresponding sides of two triangles are proportional, then _____.

Ⓐ the triangles are right triangles

Ⓑ the triangles are similar

Ⓒ corresponding side lengths are equal

Ⓓ the triangles are congruent

12 Given: $\overline{PQ} \parallel \overline{BC}$. Find the length of $\overline{AB}$.

Ⓐ 11

Ⓑ 16

Ⓒ 14

Ⓓ 10

13 In the diagram $\angle BAC \cong \angle CAD$. Use the given side lengths to find the length of $\overline{BC}$.

Ⓐ 8

Ⓑ 9

Ⓒ 10

Ⓓ 11

14 How long is a string reaching from the top of a 14-ft pole to a point on the ground that is 5 ft from the base of the pole?

Ⓐ $\sqrt{221}$ ft

Ⓑ $\sqrt{181}$ ft

Ⓒ $\sqrt{211}$ ft

Ⓓ $\sqrt{171}$ ft

15 A scuba diver has a taut rope connecting the dive boat to an anchor on the ocean floor. The rope is 120 feet long. The water is 60 feet deep. To the nearest tenth of a foot, how far is the anchor from a point directly below the boat?
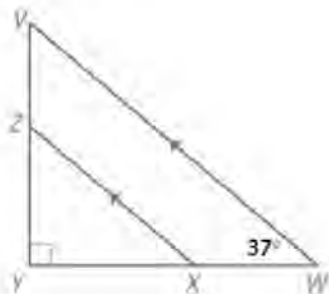
Ⓐ 119.0 ft

Ⓑ 103.9 ft

Ⓒ 134.2 ft

Ⓓ 109.4 ft

16 If the side lengths of a triangle are 7, 6, and 9, the triangle _____.

Ⓐ is an obtuse triangle

Ⓑ is a right triangle

Ⓒ is an acute triangle

Ⓓ cannot be formed

17 Find the value of *x*.
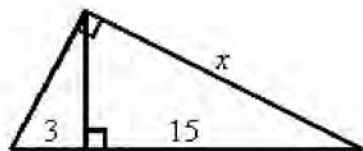

Ⓐ $3\sqrt{2}$

Ⓑ $3\sqrt{6}$

Ⓒ $3\sqrt{5}$

Ⓓ $3\sqrt{30}$

18 The hypotenuse of a 30°-60°-90° triangle is 9.6 feet long. Find the perimeter.

Ⓐ 22.71 ft

Ⓑ 19.2 ft

Ⓒ 45.43 ft

Ⓓ 20.76 ft

19 In the diagram, $\overline{VW} \parallel \overline{ZX}$. If $ZY = 5$, what is ZX?
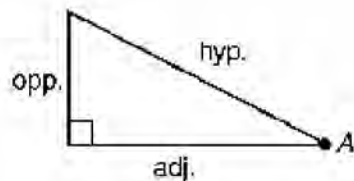

Ⓐ 8.31 ft

Ⓑ 4.20 ft

Ⓒ 3.01 ft

Ⓓ 6.64 ft

20 A photographer shines a camera light at a particular painting forming an angle of 44° with the camera platform. If the light is 56 feet from the wall where the painting hangs, how high above the platform is the painting?
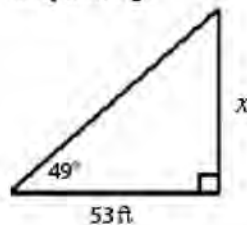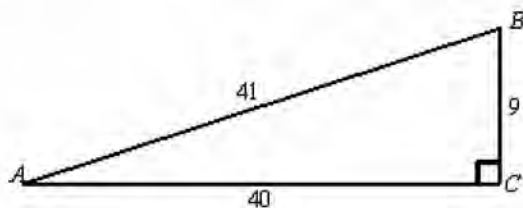

Ⓐ 1.04 ft

Ⓑ 54.08 ft

Ⓒ 0.97 ft

Ⓓ 57.99 ft

21 Find the number of sides of a convex polygon if the measures of its interior angles have a sum of 2700°.

Ⓐ 13

Ⓑ 14

Ⓒ 15

Ⓓ 17

22 What is tan 23°?

Ⓐ about 1.5882

Ⓑ about 0.4248

Ⓒ about 0.9205

Ⓓ about .3907
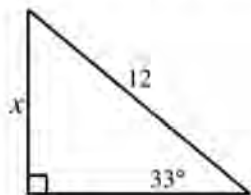
23 The cosine of $\angle A$ is the ratio _____.

(A) $\dfrac{\text{adj.}}{\text{hyp.}}$

(B) $\dfrac{\text{opp.}}{\text{hyp.}}$

(C) $\dfrac{\text{hyp.}}{\text{adj.}}$

(D) $\dfrac{\text{opp.}}{\text{adj.}}$

24 Use your calculator to find cos 23°.

(A) about 0.921
(B) about 0.390
(C) about 1.07
(D) about 0.424

25 What is x to the nearest hundredth? (not drawn to scale)

(A) $x = 10.06$
(B) $x = 18.48$
(C) $x = 6.54$
(D) $x = 7.79$

26 Find cos B for the right triangle below:

(A) $\dfrac{40}{41}$ (B) $\dfrac{9}{40}$ (C) $\dfrac{9}{41}$ (D) $\dfrac{40}{9}$

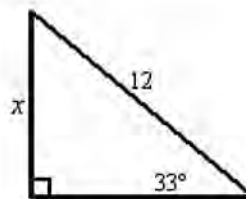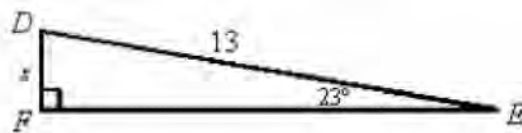**27** Find x. Round the result to the nearest hundredth.

(A) $x = 6.54$
(B) $x = 18.48$
(C) $x = 10.06$
(D) $x = 7.79$

28 Find the value of x, to the nearest whole number. (not drawn to scale)

(A) $x = 33$
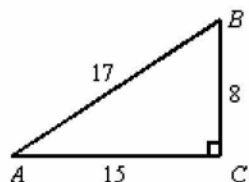(B) $x = 6$
(C) $x = 5$
(D) $x = 12$

4

29 A 170 ft string attached to a kite makes a 40° angle with the ground. What is the height of the kite to the nearest tenth?

Ⓐ 142.6 ft.
Ⓑ 109.3 ft.
Ⓒ 130.2 ft.
Ⓓ 33 ft.

30 A kite string makes a 36° angle with the ground. If the height of the kite is 150 ft., how long is the kite string (to the nearest tenth)?

Ⓐ 255.2 ft.
Ⓑ 185.4 ft.
Ⓒ 206.5 ft.
Ⓓ 109.3 ft.

31 Write cos A.

Ⓐ $\dfrac{8}{15}$

Ⓑ $\dfrac{15}{8}$

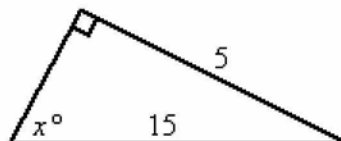Ⓒ $\dfrac{8}{17}$

Ⓓ $\dfrac{15}{17}$

32 A slide long makes an angle of 33° with the ground. The height of the slide is 4.4m, how long is the slide?

Ⓐ 2.9 m
Ⓑ 8.1 m
Ⓒ 6.8 m
Ⓓ 5.4 m

33 Find the missing angle and side measures of $\triangle ABC$, given that m$\angle A = 20°$, m$\angle C = 90°$, and $CB = 20$.

Ⓐ m$\angle B = 110°$, $c = 58.5$, $b = 55.4$
Ⓑ m$\angle B = 70°$, $c = 59$, $b = 54.9$
Ⓒ m$\angle B = 70°$, $c = 58.5$, $b = 54.9$
Ⓓ m$\angle B = 110°$, $c = 58.5$, $b = 54.9$

34 Solve for x to the nearest degree.

Ⓐ 72
Ⓑ 71
Ⓒ 18
Ⓓ 19

35 Two legs of a right triangle have lengths 15 and 8. The measure of the smaller acute angle is _____.

Ⓐ $\approx 32.2°$
Ⓑ $\approx 17°$
Ⓒ $\approx 61.9°$
Ⓓ $\approx 28.1°$

36 Which of the following is NOT enough information to solve a right triangle?

Ⓐ Two sides
Ⓑ One side length and one trigonometric ratio
Ⓒ Two angles
Ⓓ One side length and one acute angle measure

37 Assume that $\angle A$ is an acute angle and tan $A = 0.8098$. The measure of $\angle A$ is _____.
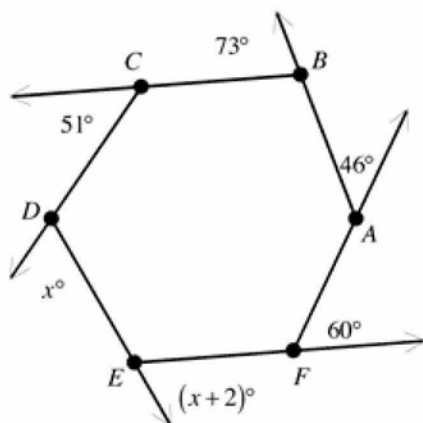
Ⓐ about 54.08°
Ⓑ about 35.92°
Ⓒ about 39.00°
Ⓓ about 129.9°

38 The measure of each exterior angle of a regular octagon is _____.
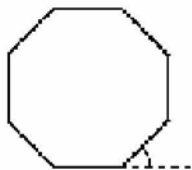
    Ⓐ 22.5°
    Ⓑ 67.5°
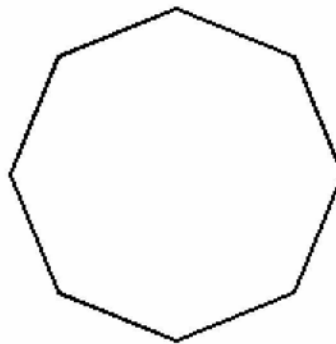   Ⓒ 45°
    Ⓓ 135°

Find the value of x. (The figure may not be drawn to scale.)

39

    Ⓐ 66
    Ⓑ 116
    Ⓒ 62
    Ⓓ 64

40 How many triangles are formed by drawing diagonals from one vertex in the figure? Find the sum of the measures of the angles in the figure.
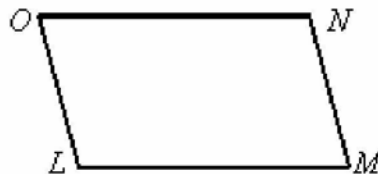

    Ⓐ 7, 1260°
    Ⓑ 6, 1260°
    Ⓒ 6, 1080°
    Ⓓ 7, 1080°

41 Consecutive angles in a parallelogram are always _____.
    Ⓐ congruent angles
    Ⓑ complementary angles
    Ⓒ supplementary angles
    Ⓓ vertical angles

42 If $ON = 6x - 6$, $LM = 5x + 2$, $NM = x + 5$, and $OL = 3y + 7$, find the values of x and y given that $LMNO$ is a parallelogram.
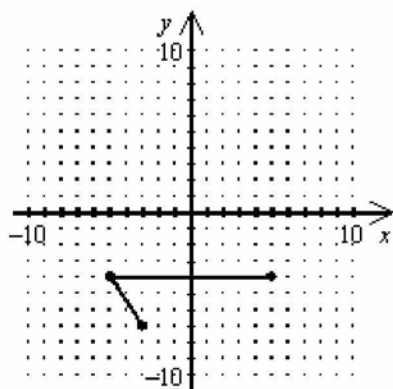

    Ⓐ $x = 4; y = 2$
    Ⓑ $x = 8; y = \dfrac{1}{2}$
    Ⓒ $x = 8; y = 2$
    Ⓓ $x = \dfrac{1}{4}; y = \dfrac{1}{2}$

43 Which type of quadrilateral has no parallel sides?
- (A) rectangle
- (B) trapezoid
- (C) rhombus
- (D) kite

44 Three vertices of an isosceles trapezoid are shown in the figure below.

What are the coordinates of the missing vertex that make the *y*-axis the line of symmetry?

- (A) $\left(-7, 3\right)$
- (B) $\left(4, -7\right)$
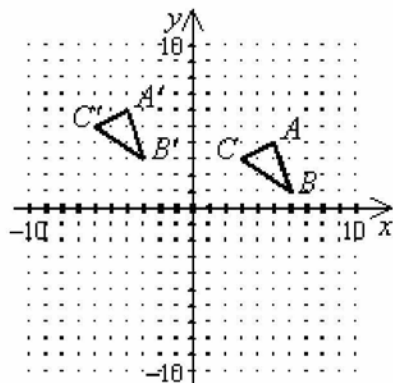- (C) $\left(3, -8\right)$
- (D) $\left(3, -7\right)$

45 If all four sides of a quadrilateral are congruent, the quadrilateral is _____.
- (A) a kite
- (B) a nonsquare rectangle
- (C) a rhombus
- (D) a trapezoid

46 An ISOMETRY is a transformation which does not have to preserve _____.
- (A) position
- (B) betweenness
- (C) length
- (D) angle measure

47 The rule for this transformation of $\triangle ABC$ onto $\triangle A'B'C'$ is _____ .

- (A) $(x, y) \rightarrow (x - 9, y - 2)$
- (B) $(x, y) \rightarrow (x + 9, y + 2)$
- (C) $(x, y) \rightarrow (x - 9, y + 2)$
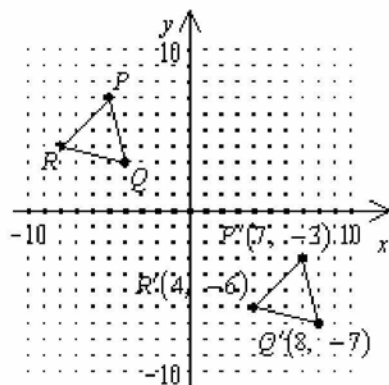- (D) $(x, y) \rightarrow (x + 9, y - 2)$

48 The point $A(-7, 3)$ is translated onto A' by the vector $\vec{u} = \langle 5, -4 \rangle$. The coordinates of A' are _____.
- (A) $(-2, -1)$
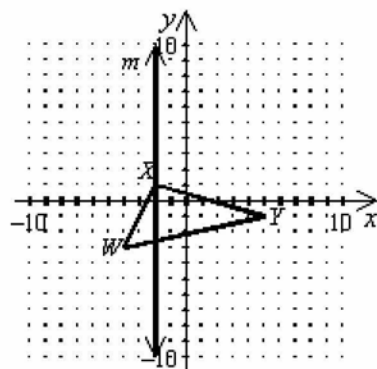- (B) $(-12, 7)$
- (C) $(2, -7)$
- (D) $(5, -4)$

49 A figure is translated using the vector $\langle -4, 2 \rangle$. What translation vector would move the image back to its original position?

- (A) $\langle -2, 4 \rangle$
- (B) $\langle -4, 2 \rangle$
- (C) $\langle 2, -4 \rangle$
- (D) $\langle 4, -2 \rangle$

7

50 The rule for this transformation of $\triangle PQR$ onto $\triangle P'Q'R'$ is _____ .

- Ⓐ $\langle -10, 12 \rangle$
- Ⓑ $\langle 12, -10 \rangle$
- Ⓒ $\langle -12, 10 \rangle$
- Ⓓ $\langle 10, -12 \rangle$

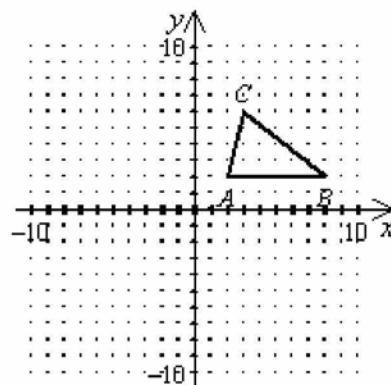**51** What are the coordinates of the vertices when the figure is reflected in line m?

- Ⓐ W' (4, –3), X' (–2, –1), Y' (–5, –1)
- Ⓑ W' (4, 3), X' (2, –1), Y' (–5, 1)
- Ⓒ W' (0, –3), X' (–2, 1), Y' (–9, –1)
- Ⓓ W' (–3, 0), X' (1, –2), Y' (–1, –9)

52 The composition of two (or more) isometries is always _____.
- Ⓐ an isometry
- Ⓑ a translation
- Ⓒ a rotation
- Ⓓ a reflection

53 Using $\triangle ABC$, find the coordinates of the image of A after the glide reflection described.
Translation: $(x, y) \rightarrow (x - 4, y - 3)$; Reflection: in $x = 1$

- Ⓐ (4, -1)
- Ⓑ (3, -1)
- Ⓒ (-2, -1)
- Ⓓ (2, -1)

54 Which of the following is NOT true?
- Ⓐ A regular hexagon has rotational symmetry and always has line symmetry.
- Ⓑ A triangle has rotational symmetry and always has line symmetry.
- Ⓒ A rectangle has rotational symmetry and always has line symmetry.
- Ⓓ A parallelogram has rotational symmetry and may have line symmetry.

8

**55** During ceramics class, Susan painted plates for her mother. Which design exhibits rotational symmetry?

Ⓐ

Ⓑ

Ⓒ

Ⓓ
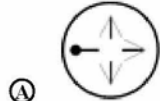
56 The figure below is made up of two squares with the areas shown. What is the length of x?

4900   2500

$\longleftarrow x \longrightarrow$
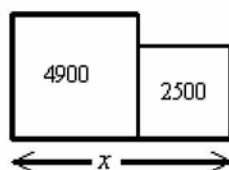
Ⓐ   925
Ⓑ   120
Ⓒ   3700
Ⓓ   350

57 A rectangular field is 280 m by 390 m. A rectangular barn 25 m by 33 m is built in the field. How much area is left over?

Ⓐ $110,025 \text{ m}^2$
Ⓑ $108,375 \text{ m}^2$
Ⓒ $109,142 \text{ m}^2$
Ⓓ $108,388 \text{ m}^2$

58 A rectangular garden, 42 feet by 20 feet, is surrounded by a walkway of uniform width. If the total area of the garden and walkway is 1248 square feet, the width of the walkway is _____.
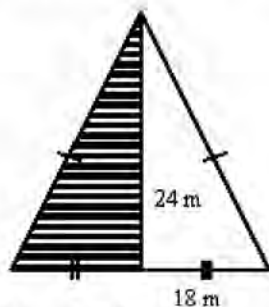
walk

42 ft

Garden   20 ft
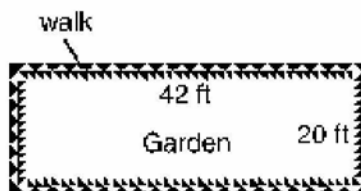
Ⓐ   2 ft
Ⓑ   3 ft
Ⓒ   2.5 ft
Ⓓ   3.29 ft

59 A rectangle has length l and width w. An expression for its area is _____.

Ⓐ $2(l+w)$

Ⓑ $\sqrt{l^2 + w^2}$

Ⓒ $l \cdot w$

Ⓓ $\sqrt{lw}$

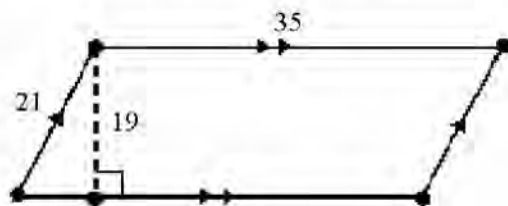**60** Find the area of the quadrilateral. (not drawn to scale)

17   15

x 23

13

Ⓐ   434
Ⓑ   120
Ⓒ   868
Ⓓ   428

9
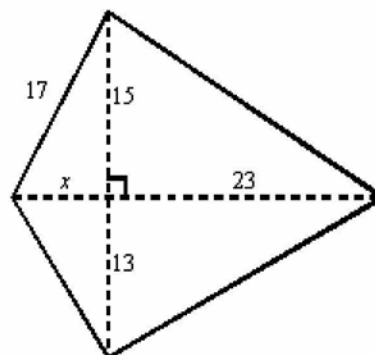
61 Find the area of the shaded triangle.

24 m

18 m
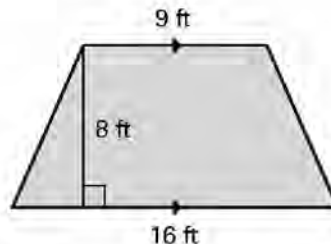
Ⓐ 54 m²

Ⓑ 108 m²

Ⓒ 216 m²

Ⓓ 432 m²

62 In rhombus *ABCD*, *AB* = 13 and *AC* = 25. Find the area of the rhombus to the nearest tenth.

Ⓐ 234.4

Ⓑ 277.6

Ⓒ 89.3

Ⓓ 94.0
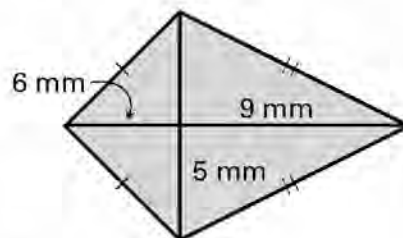
63 The area of the parallelogram is _____.

35

21

19

Ⓐ 332.5 sq. units

Ⓑ 665 sq. units
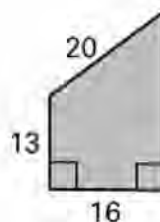
Ⓒ 735 sq. units

Ⓓ 367.5 sq. units

64 Find the shaded area.

9 ft

8 ft

16 ft

Ⓐ 200 sq. ft.

Ⓑ 120 sq. ft.

Ⓒ 100 sq. ft.

Ⓓ 90 sq. ft.

65 Find the shaded area.

6 mm

9 mm

5 mm

Ⓐ 270 sq. mm

Ⓑ 150 sq. mm

Ⓒ 100 sq. mm

Ⓓ 75 sq. mm

66 The area of the trapezoid is 304 sq. in. Solve for the missing base.
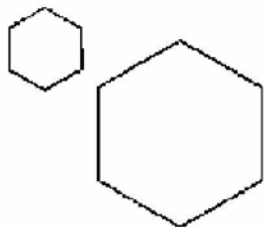
20

13

16

Ⓐ 12.5

Ⓑ 25

Ⓒ 35

Ⓓ 50

67 The area of a regular octagon is 45 cm^2. What is the area of a regular octagon with sides three times as large as the sides of the first octagon?

Ⓐ 135 cm^2

Ⓑ 340 cm^2

Ⓒ 6075 cm^2

Ⓓ 405 cm^2

68 The ratio of the side lengths of two regular hexagons is 4 to 9. If the area of the smaller hexagon is 16 square units, then the area of the larger hexagon is _____.

Ⓐ 81 sq. units

Ⓑ $\frac{256}{81}$ sq. units

Ⓒ 36 sq. units

Ⓓ $\frac{64}{9}$ sq. units

69 Leila needs to make a poster that is 2 m by 3.5 m for the big game. The cost of the paper is $2.75. Later she needs another poster with dimensions 1 m by 1.75 m. What is the paper for this poster likely to cost?

Ⓐ $0.44

Ⓑ $0.69

Ⓒ $1.38

Ⓓ $1.63

70 If both the base and height of a triangle are made nine times as long, how many times the area of the original figure is the area of the new figure?

Ⓐ nine times

Ⓑ ninety times

Ⓒ eighty-one times

Ⓓ thirty-six times

Find the area:

2.2 m

71
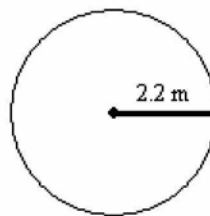
Ⓐ 13.816 m^2

Ⓑ 15.1976 m^2

Ⓒ 3.7994 m^2

Ⓓ 60.7904 m^2

72 Find the area of a regular heptagon with side length 10 cm.

Ⓐ 363.4 cm^2

Ⓑ 346.7 cm^2

Ⓒ 403.3 cm^2

Ⓓ 726.8 cm^2

73 Find the area of a regular nonagon with radius 6 cm. Round to the nearest tenth.

Ⓐ 159.5 cm^2

Ⓑ 104.1 cm^2

Ⓒ 208.3 cm^2

Ⓓ 122.7 cm^2