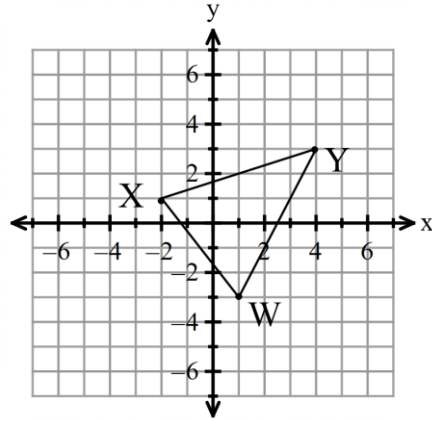


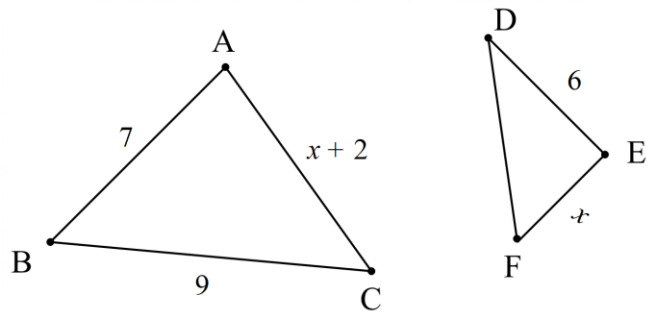
1) $\triangle WXY$, as shown in the diagram, is dilated about the origin, with a scale factor of 4. Find the coordinates of the image.

- A) $X'(-2, 1); Y'(4, 3); W'(1, -3)$
- B) $X'(-8, 4); Y'(16, 12); W'(4, -12)$
- C) $X'(4, -8); Y'(12, 16); W'(12, -4)$
- D) $X'(2, 5); Y'(9, 8); W'(5, 1)$



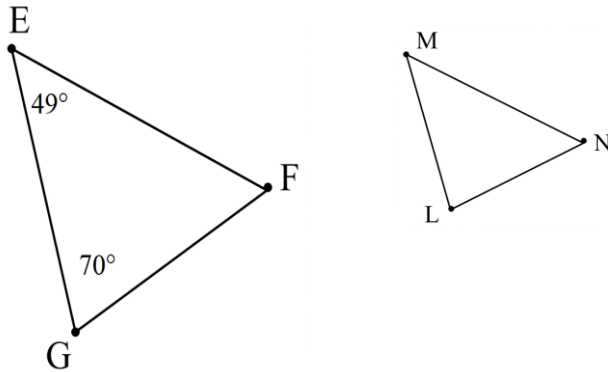
2) Given that $\triangle ACB \sim \triangle FED$, find x .

- A) 2
- B) 3
- C) 4
- D) 5



3) Given that $\triangle FGE \sim \triangle LMN$ and $\angle L = (4x + 21)^\circ$, find x . If needed, round to one decimal place.

- A) 22.75
- B) 12.25
- C) 7
- D) 10

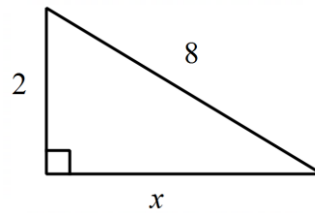


4) $\triangle PQR$ is dilated about the origin such that $P(-4, 6)$ has the image $P'(-1, 1.5)$. What is the scale factor of the dilation?

- A) 4
- B) 3
- C) -3
- D) $\frac{1}{4}$

5) Find the value of x in the triangle shown.

- A) $2\sqrt{17}$
- B) 10
- C) $2\sqrt{15}$
- D) 6



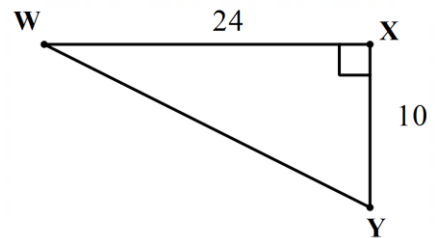
For #6 – 7: Use the diagram shown.

6) Find the length of WY .

- A) 34
- B) 14
- C) 13
- D) 26

7) Find the *perimeter* of WXY .

- A) 26
- B) 60
- C) 47
- D) 13



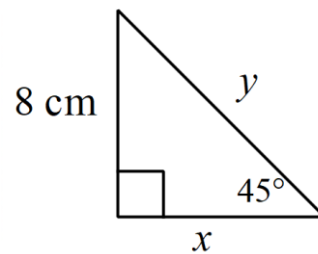
For #8 – 9: Use the triangle shown.

8) Find x in the triangle shown.

- A) $x = 8$
- B) $x = 8\sqrt{2}$
- C) $x = 16$
- D) $x = 8\sqrt{3}$

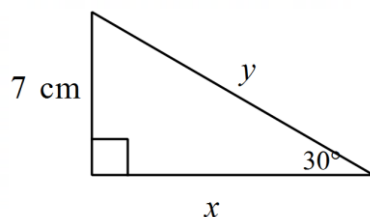
9) Find y in the triangle shown.

- A) 8
- B) $8\sqrt{2}$
- C) 16
- D) $8\sqrt{3}$



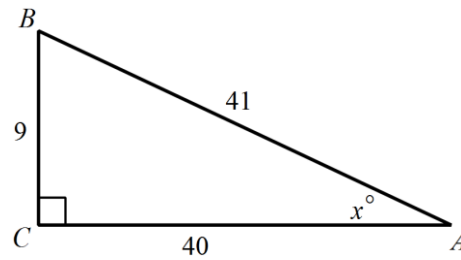
10) Find x and y in the triangle shown below. If needed, write your answers as a simplified radical.

- A) $x = 7\sqrt{3}; y = 14$
- B) $x = 7, y = 7\sqrt{3}$
- C) $x = 7, y = 7\sqrt{2}$
- D) $x = 14\sqrt{3}, y = 7$



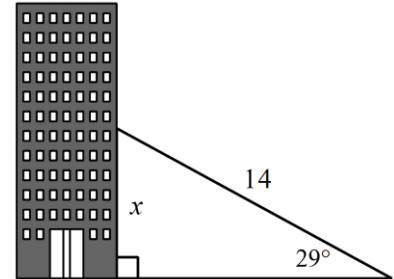
11) What is $\cos x^\circ$ in the triangle?

- A. $\frac{40}{41}$
- B. $\frac{9}{41}$
- C. $\frac{41}{9}$
- D. $\frac{9}{40}$



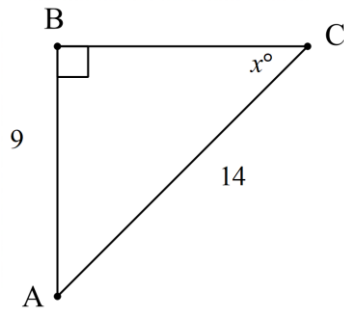
12) A 14-foot long ladder is leaning against a building with an angle of elevation of 29° . Find the height that the ladder hits the building at.

- A) 6.79 feet
- B) 12.24 feet
- C) 7.76 feet
- D) 28.14 feet



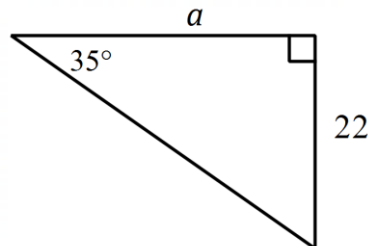
13) Given the diagram shown, find the measure of $\angle C$. If needed, round to one decimal place.

- A) 32.7°
- B) 57.3°
- C) 40.0°
- D) 50.0°



14) Find a in the triangle shown below.

- A) 31.4
- B) 15.4
- C) 26.9
- D) 18.0

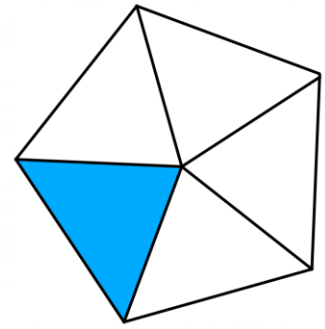


15) The perimeter of a square is 40 cm. Find the area of the square.

- A) 1600 cm^2
- B) 400 cm^2
- C) 100 cm^2
- D) 10 cm^2

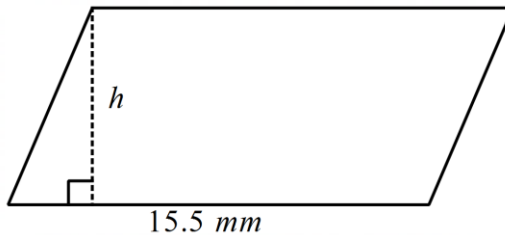
16) Given the regular pentagon shown, where the shaded region has an area of 11.2 in^2 . Find the area of the regular pentagon.

- A) 56 in^2
- B) 16.2 in^2
- C) 44.8 in^2
- D) 22.4 in^2



17) The parallelogram shown below has an area of 62 mm^2 . Find the height of the parallelogram.

- A) 4 mm
- B) 15.5 mm
- C) 8 mm
- D) 31 mm

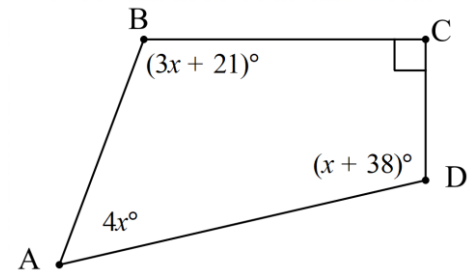


18) Find the sum of the interior angles of a regular octagon.

- A) 1820°
- B) 1440°
- C) 1360°
- D) 1080°

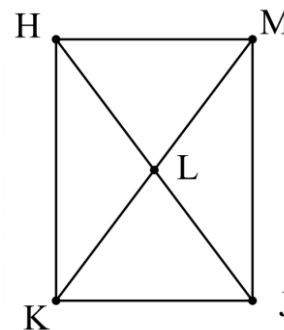
19) Find the measure of $\angle A$. If needed, round to one decimal place.

- A) 105.5°
- B) 26.4°
- C) 150.5°
- D) 15.5°



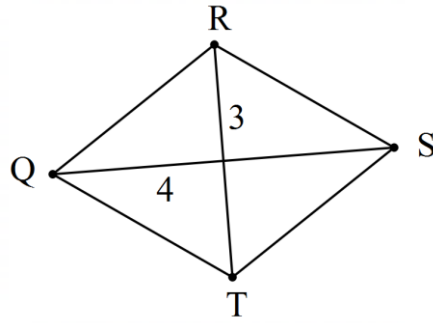
20) For the rectangle shown below, find x if $HL = 5x - 12$ and $LM = x + 19$.

- A) 7.75
- B) 26.75
- C) 53.5
- D) 20.75



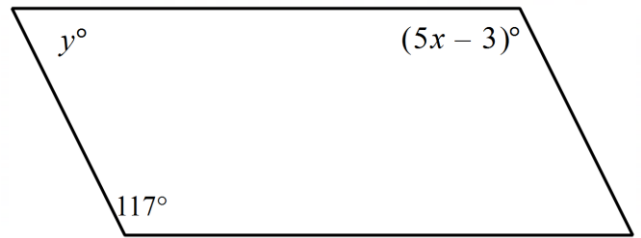
21) Given that $QRST$ is a rhombus, find its perimeter.

- A) 5
- B) 20
- C) 25
- D) 28



22) For the parallelogram shown, find x and y .

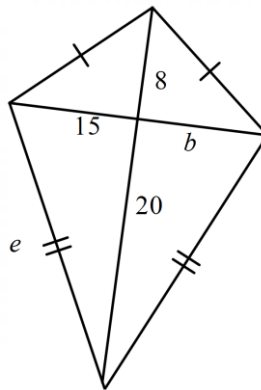
- A) $x = 24; y = 117$
- B) $x = 24; y = 63$
- C) $x = 13.2; y = 63$
- D) $x = 13.2; y = 117$



For #23 – 24, use the kite shown.

23) Find b .

- A) 8
- B) 15
- C) 17
- D) 20

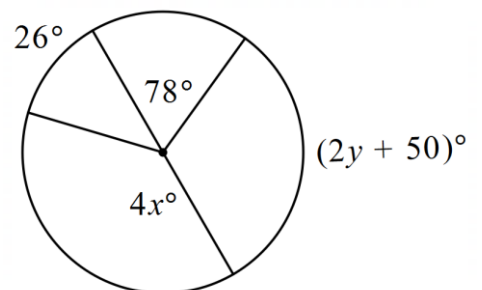


24) Find e .

- A) 20
- B) 24
- C) 25
- D) 27

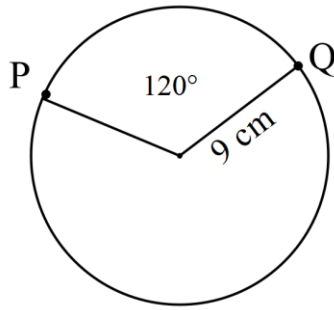
25) Find x and y in the diagram below.

- A) $x = 26; y = 26$
- B) $x = 58.5; y = 10$
- C) $x = 42.5; y = 10$
- D) $x = 38.5; y = 26$



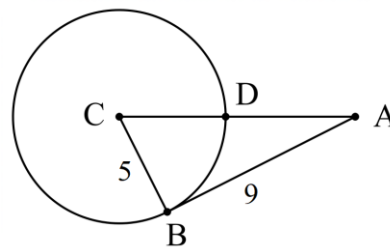
26) In the circle below, what is the arc length of \widehat{PQ} ? Write your answer in terms of pi.

- A) 6π cm
- B) 3π cm
- C) 18π cm
- D) 20π cm



27) \overline{AB} is tangent to circle M at point A . The circle has a radius of 5 and $AB = 9$. What is the length of \overline{AD} ? Round to one decimal place.

- A) 10.3
- B) 5.3
- C) 3.7
- D) 8.4



28) A circle has circumference of 26π meters. What is the area, rounded to one decimal place?

- A) $169 m^2$
- B) $2123.7 m^2$
- C) $676 m^2$
- D) $530.9 m^2$

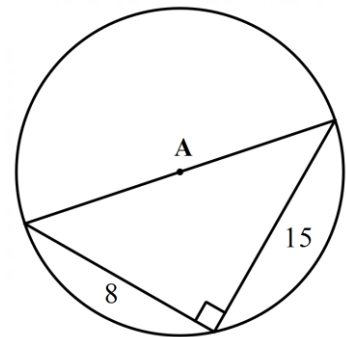
For #29 – 30, use the circle shown below:

29) Find the diameter of circle A.

- A) 16
- B) 30
- C) 17
- D) 8.5

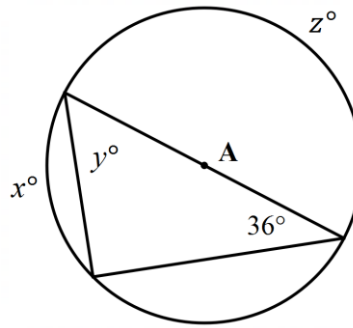
30) Find the circumference of circle A.

- A) 17π
- B) 32π
- C) 16π
- D) 30π



For #31 – 33, use the circle shown below:

- 31) Find x .
 A) 18
 B) 72
 C) 36
 D) 90

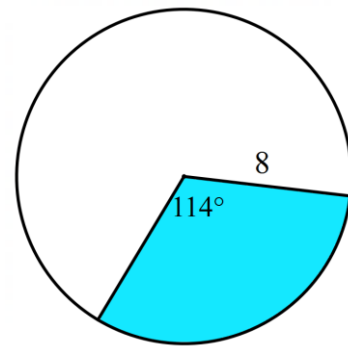


- 32) Find y .
 A) 54
 B) 36
 C) 72
 D) 27

- 33) Find z .
 A) 90
 B) 180
 C) 45
 D) 360

34) Find the area of the shaded sector, rounded to one decimal place.

- A) 5.1
 B) 15.9
 C) 20.3
 D) 63.7

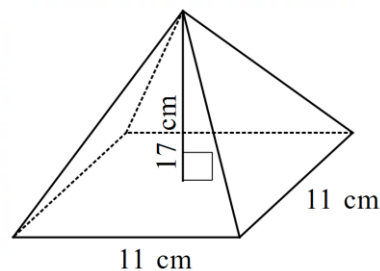


35) A rectangular prism has a volume of 400 m^3 . Find the length of the prism if the base is 20 m and the height is 5 m .

- A) 100 m
 B) 40 m
 C) 12 m
 D) 4 m

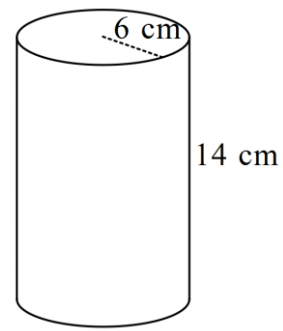
36) Find the volume of the solid below. The base is a square.

- A) 685.7 cm^3
 B) 62.3 cm^3
 C) 2057 cm^3
 D) 187 cm^3



37) Find the volume of the solid shown, in terms of pi.

- A) $126\pi \text{ cm}^3$
- B) $84\pi \text{ cm}^3$
- C) $504\pi \text{ cm}^3$
- D) $326\pi \text{ cm}^3$



38) A cube has a surface area of 24 in^2 . Find the volume of the cube.

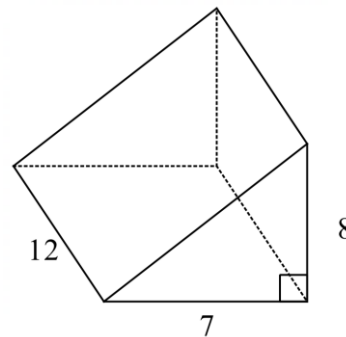
- A) 8 in^3
- B) 16 in^3
- C) 32 in^3
- D) 64 in^3

39) Find the volume of a sphere, rounded to one decimal place, with a *diameter* of 15.

- A) 1767.1
- B) 14,137.2
- C) 2827.4
- D) 706.9

40) Find the volume of the triangular prism shown.

- A) 424
- B) 84
- C) 672
- D) 336



41) A sphere has a surface area of 36π . Find the length of the radius of the sphere.

- A) 9
- B) 6
- C) 4
- D) 3

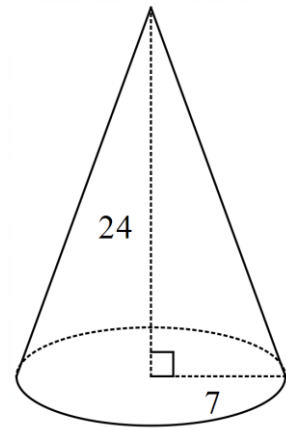
For #42 – 43, use the cone shown below.

42) Find the surface area of the cone shown, in terms of pi.

- A) 182π
- B) 224π
- C) 217π
- D) 177π

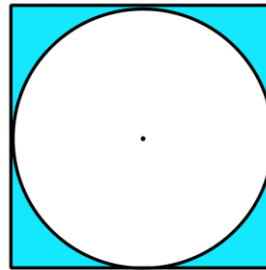
43) Find the volume of the cone shown, in terms of pi.

- A) 25π
- B) 56π
- C) 392π
- D) 1176π



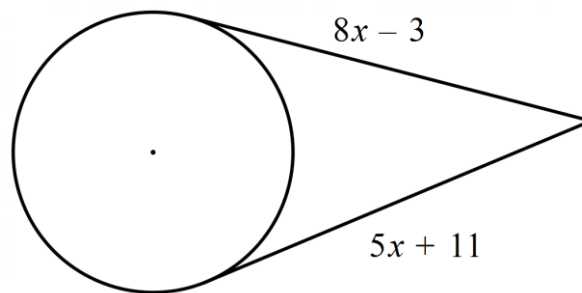
44) Find the area of the shaded region below, in terms of pi, if the square shown has a side length of 10.

- A) $10 - 5\pi$
- B) 25π
- C) 75π
- D) $100 - 25\pi$



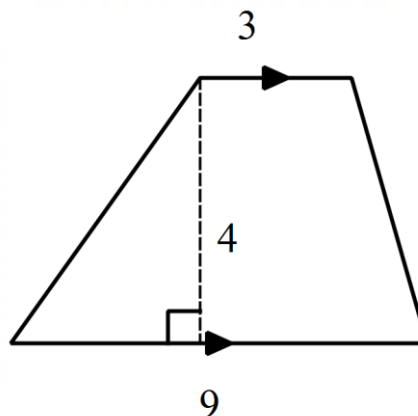
45) Find x . The segments are drawn tangent to the circle.

- A) 11
- B) 0.92
- C) 4.67
- D) 5.33



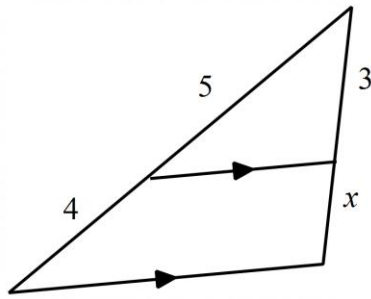
46) Find the area of the trapezoid shown.

- A) 24
- B) 12
- C) 18
- D) 36



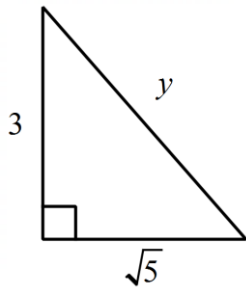
47) Find x .

- A) 3
- B) 4
- C) 1.5
- D) 2.4



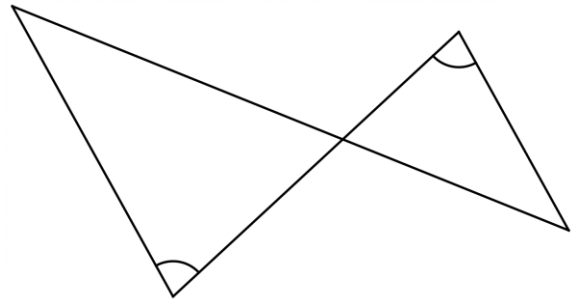
48) Find y .

- A) 14
- B) $2\sqrt{2}$
- C) $\sqrt{14}$
- D) 8



49) Why are the triangles shown to the right similar?

- A) SSS~
- B) SAS~
- C) AA~
- D) There is not enough evidence to show similar triangles.



50) Given the similarity statement $\Delta WXY \sim \Delta DFG$, complete the sentence: $\frac{WX}{DF} = \frac{WY}{?}$

- A) WX
- B) DG
- C) FG
- D) XY