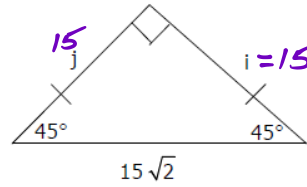
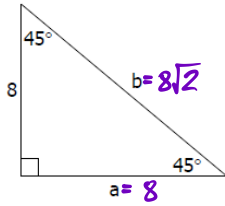
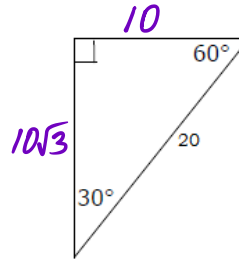
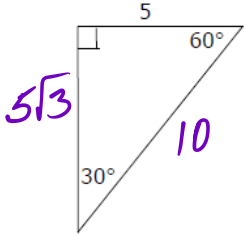


Geometry Final Exam Review

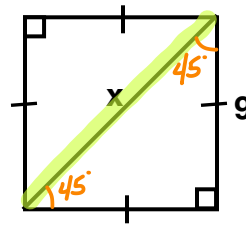
1. In the figures find the missing parts.



2. In the figures find the missing parts.



3. Tom is trying to put a divider diagonally to separate his animals and his play area. If he knows that each side of his backyard is 9ft long, how many feet of fencing will he need to build a divider between them.



$x = 9\sqrt{2}$

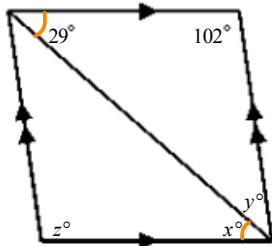
↳ square

4. For each of the following regular Heptagon find:

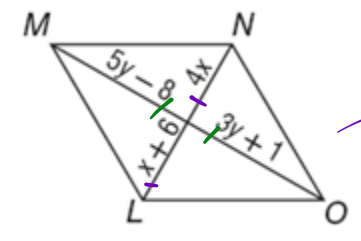
- a) the sum of the interior angles: 900°
 $= (n-2)180$
- b) the measure of each interior angle: 128.6°
 $= \frac{(n-2)180}{n}$
- c) the sum of the exterior angles: 360
- d) the measure of each exterior angle: 51.4°
 $= \frac{360}{n}$ *always ↗*

7-sided polygon
 $n=7$

5. Find the values of the variables in the parallelogram. The diagram is not to scale.



$29 + 102 + y = 180$
 $y = 49°$
 $x = 29°$
alternate int ∠s
 $z = 102°$
opposite angles



$4x = x + 6$
 $3x = 6$
 $x = 2$

$5y - 8 = 3y + 1$
 $2y - 8 = 1$
 $2y = 9$
 $y = 4.5$

6. Solve the proportion: $\frac{2}{8} = \frac{5}{x}$

$2x = 8(5)$
 $2x = 40$
 $x = 20$

7. Solve the proportion for x. $\frac{4}{10} = \frac{2x}{(x+6)}$

$$4(x+6) = 2x(10)$$

$$4x + 24 = 20x$$

$$24 = 16x$$

$$x = 1.5$$

8. A survey showed that 3 out of every 7 voters would vote in an election. Based on this survey, how many people would vote in a city with 21,000 voters?

voters
total surveyed

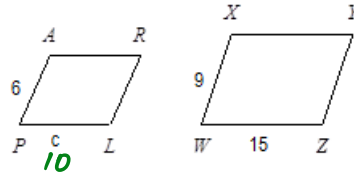
9. Parallelogram *PARL* ~ parallelogram *WXYZ*. Find the value of *c*.

$$\frac{6}{c} = \frac{9}{15} \text{ or } \frac{6}{9} = \frac{c}{15}$$

$$9c = 6(15)$$

$$9c = 90$$

$$c = 10$$



10. Find x and the measures of the indicated parts. *AB* and *BC*

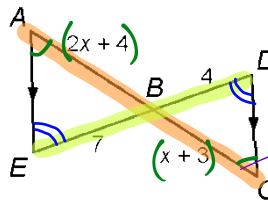
$$\frac{7}{(2x+4)} = \frac{4}{(x+3)}$$

$$7(x+3) = 4(2x+4)$$

$$7x + 21 = 8x + 16$$

$$21 = 1x + 16$$

$$x = 5$$



$$AB = 2x + 4 = 2(5) + 4 = 14$$

$$BC = x + 3 = 5 + 3 = 8$$

11. Given *RSTU* ~ *LMNO*, solve for x.

proportional sides

$$\frac{3}{9} = \frac{4}{12} = \frac{2}{6}$$

ratio $\frac{1}{3}$

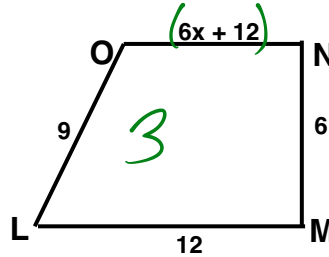
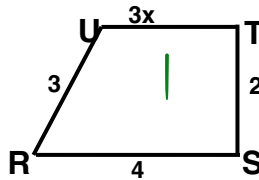
$$\frac{1}{3} = \frac{3x}{(6x+12)}$$

$$1(6x+12) = 3(3x)$$

$$6x + 12 = 9x$$

$$12 = 3x$$

$$x = 4$$



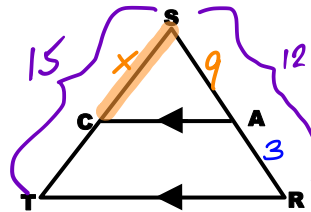
12. Given the figure, *SR* = 12, *AR* = 3, and *ST* = 15, find *SC*.

$$\frac{x}{15} = \frac{9}{12}$$

$$12x = 9(15)$$

$$12x = 135$$

$$x = 11.25$$



13. If a 15-foot tree casts a 9-foot-long shadow. How tall is a tree that casts a 5-foot-long shadow?

$$\frac{15}{9} = \frac{h}{5}$$

$$9h = 5(15)$$

$$h = 8.3 \text{ ft or } 8\frac{1}{3} \text{ ft or } 8 \text{ ft } 4 \text{ in}$$

14. Michele wanted to measure the height of her school's flagpole. She placed a mirror on the ground 44 feet from the flagpole, then walked backwards until she was able to see the top of the pole in the mirror. Her eyes were 6 feet above the ground and she was 18 feet from the mirror. Using similar triangles, find the height of the flagpole to the nearest tenth of a foot.

$$\frac{h}{44} = \frac{6}{18}$$

$$18h = 6(44)$$

$$18h = 264$$

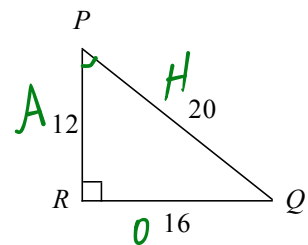
$$h = 14.6 \text{ ft or } 14\frac{3}{5} \text{ ft or } 14 \text{ ft } 8 \text{ in}$$

15. Write the trigonometric (sine, cosine, and tangent) ratios for $\angle P$ and $\angle Q$.

$$\sin P = \frac{16}{20} \rightarrow \frac{4}{5}$$

$$\cos P = \frac{12}{20} \rightarrow \frac{3}{5}$$

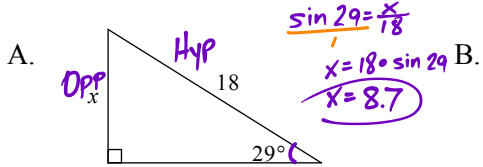
$$\tan P = \frac{16}{12} \rightarrow \frac{4}{3}$$



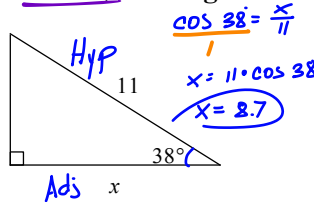
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Trigonometry: Set calculator to degree mode.

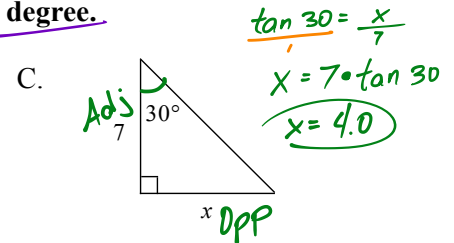
16. Find the value of x . Round sides to the nearest tenth, and angles to the nearest degree.



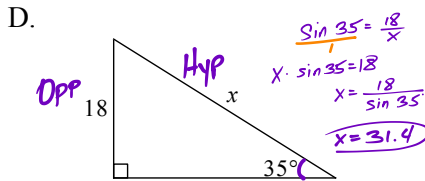
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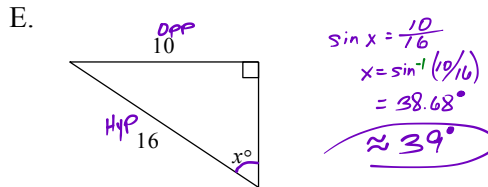
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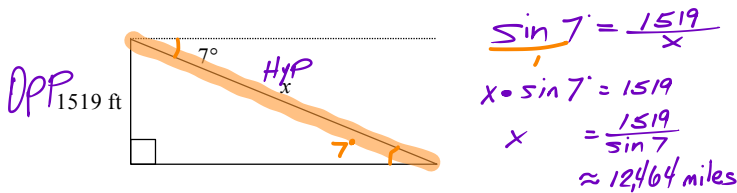


Not drawn to scale



Not drawn to scale

17. To approach the runway, a small plane must begin a 7° descent starting from a height of 1519 feet above the ground. To the nearest tenth of a mile, how many miles from the runway is the airplane at the start of this approach?

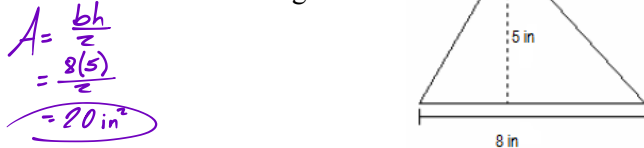


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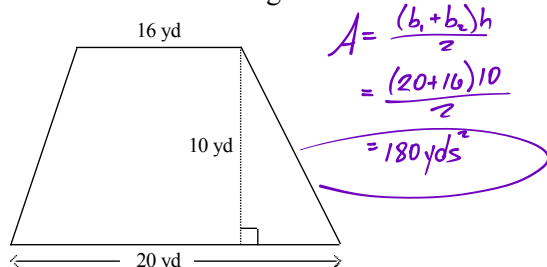
18. Determine the height of the flagpole shown in the figure.



19. Find the area of the triangle.



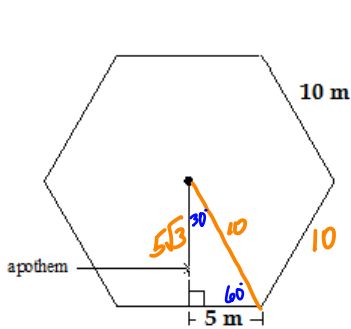
20. Find the area of the figure. Round to the nearest tenth if necessary.



21. The area of a parallelogram is 225 cm² and the height is 15 cm. Find the corresponding base.

$A = bh$
 $225 = b(15)$
 $b = 15$ cm

22. Find the area of a regular hexagon with side length 8 m. Round to the nearest tenth.



$$S = 10$$

$$P = 10(6 \text{ sides}) = 60$$

$$a = 5\sqrt{3}$$

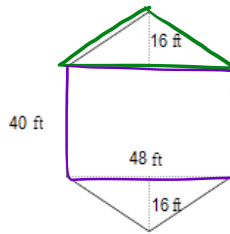
$$A = \frac{1}{2}aP$$

$$= \frac{5\sqrt{3}(60)}{2}$$

$$= 150\sqrt{3}$$

$$\approx 86.6$$

23. Find the area of the composite figure.



$$A_{\Delta} = \frac{48(16)}{2} = 384 \text{ ft}^2$$

$$A_{\square} = 48(40) = 1920 \text{ ft}^2$$

$$A_{\text{total}} = 384 + 1920 + 384$$

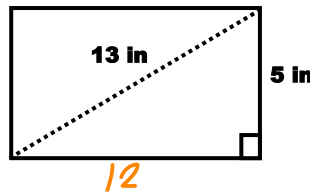
$$= 2688 \text{ ft}^2$$

24. Find the area of a rectangle that is 14 cm long and 3 cm wide.

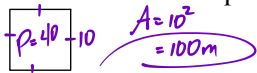
$$A = 14(3) = 42 \text{ cm}^2$$

25. Find the perimeter of the rectangle shown.

$$34 \text{ in.}$$



26. Find the area of a square with a perimeter of 40 m.



$$A = 10^2$$

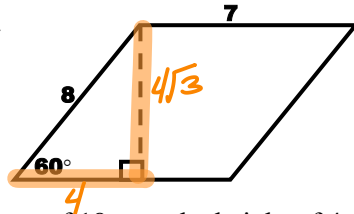
$$= 100 \text{ m}^2$$

27. Find the area of the parallelogram.

$$A = 7(4\sqrt{3})$$

$$= 28\sqrt{3}$$

$$\approx 48.5$$



28. Find the area of a triangle with a base of 18 m and a height of 4 m.

$$A = \frac{18(4)}{2}$$

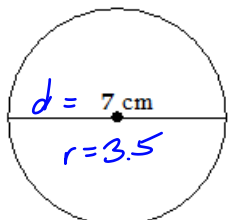
$$= 36 \text{ m}^2$$

29. A trapezoid with a height of 6 ft has bases of lengths 12 ft and 8 ft. Find the area of the trapezoid.

$$A = \frac{(12+8)6}{2}$$

$$= 60 \text{ ft}^2$$

30. Find the circumference of the circle. Leave your answer in terms of π .



$$C = 2\pi r \text{ or } \pi d$$

$$= 7\pi \text{ cm}$$

31. Find the area of a circle with a radius of 18 inches in terms of π .

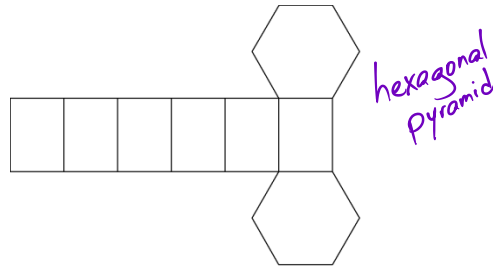
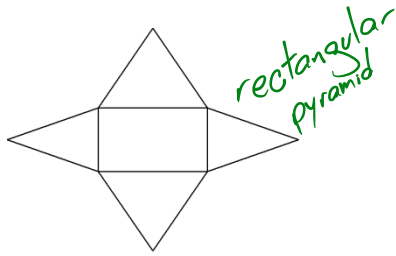
$$r = 18$$

$$A = \pi r^2$$

$$= \pi 18^2$$

$$= 324\pi \text{ in}^2$$

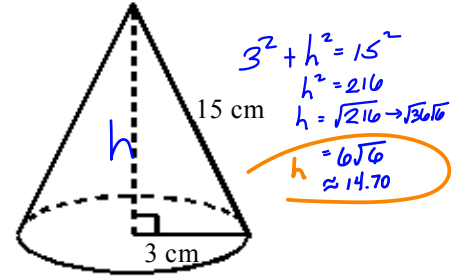
32. Describe the three-dimensional figure that can be made from the given net.



33. Find the surface area of the cone to the nearest square unit. Use $\pi = 3.14$.

$\pi = 3.14$
 $r = 3$
 $l = 15$

$SA_{total} = \pi r l + \pi r^2$
 $= 3.14(3)(15) + 3.14(3)^2$
 $= 169.56$
 $\approx 170 \text{ cm}^2$



Not drawn to scale

34. Find the volume of a right rectangular prism with length 10 in., width 9 in., and height 5 in. Round to the nearest tenth, if necessary.

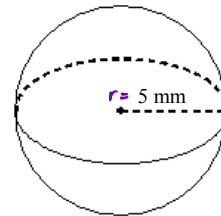
$V = 10(9)(5)$
 $= 450 \text{ in}^3$

35. Find the surface area and volume of the sphere to the nearest square unit.

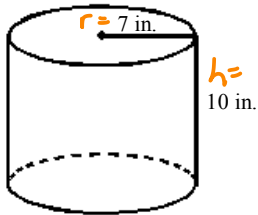
$SA = 4\pi r^2$
 $= 4\pi 5^2$
 $= 100\pi \text{ mm}^2$
 $\approx 314 \text{ mm}^2$

$V = \frac{4}{3}\pi r^3$
 $= \frac{4}{3}\pi 5^3$

$V = \frac{500}{3}\pi \text{ mm}^3$
 $\approx 524 \text{ mm}^3$



36. Find the surface area and volume of the cylinder to the nearest cubic foot. Use a calculator.



Not drawn to scale

$SA = 2\pi r h + 2\pi r^2$
 $= 2\pi 7(10) + 2\pi 7^2$
 $= 140\pi + 98\pi$
 $= 238\pi$
 $\approx 748 \text{ in}^2$

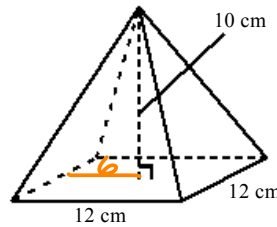
$V = \pi r^2 h$
 $= \pi 7^2(10)$
 $= 490\pi \text{ in}^3$
 $\approx 1539 \text{ in}^3$

37. Find the lateral area, surface area, and volume of the pyramid.

$LA = \frac{1}{2} P l$
 $= \frac{1}{2}(48)(2\sqrt{34})$
 $= 48\sqrt{34} \approx 279.9 \text{ cm}^2$

$SA = \frac{1}{2} P l + B$
 $= 48\sqrt{34} + 144$
 $\approx 423.9 \text{ cm}^2$

$V = \frac{1}{3} B h$
 $= \frac{1}{3}(144)(10)$
 $= 48$

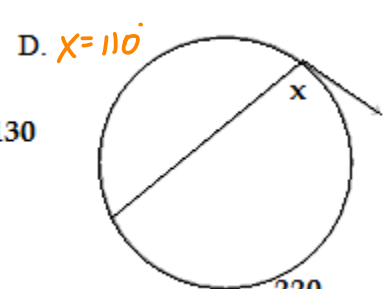
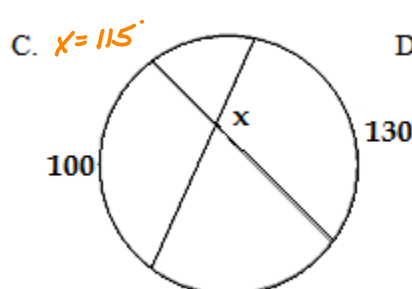
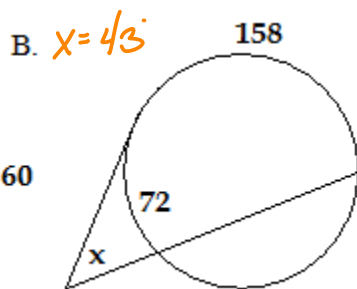
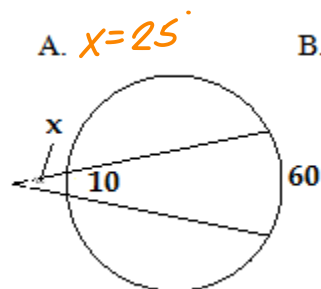


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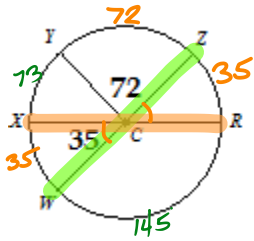
$s = 12$
 $P = 42$
 $B = 144$
 $h = 10$
 $l = 2\sqrt{34}$
 ≈ 11.66

$6^2 + 10^2 = l^2$
 $l^2 = 136$
 $= 2\sqrt{34}$
 ≈ 11.66

38. Find the measure of $\angle x$.



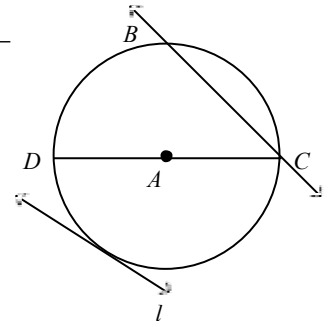
39. \overline{WZ} and \overline{XR} are diameters. Find the measure of arc ZWX .
(The figure is not drawn to scale.)



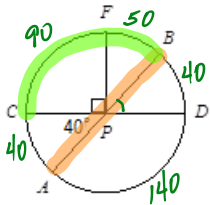
$$m\widehat{ZWX} = 35 + 145 + 35 = 215$$

40. Identify all the lines in $\odot A$.

- Secant: \overleftrightarrow{BC}
 Tangent: $\overleftrightarrow{line\ l}$
 Radius: $\overline{AD} + \overline{AC}$
 Diameter: \overline{DC}
 Chord: \overline{BC}



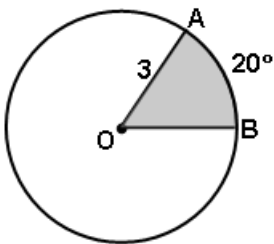
41. Find $m(\text{arc})CFB$ and $m\angle BPD$.



$$m\widehat{CFB} = 90 + 50 = 140$$

$$m\angle BPD = 180$$

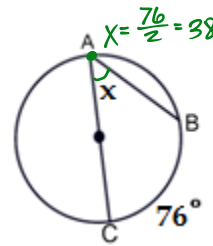
42. Find the area of sector and arc length. Give your answer in terms of π .



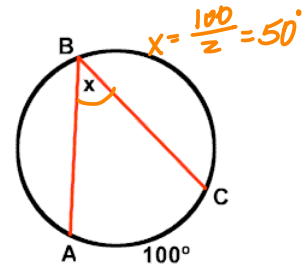
$$\text{arc length} = 2\pi r \left(\frac{\text{arc}}{360}\right) = 2\pi(3)\left(\frac{20}{360}\right) = \frac{1}{3}\pi$$

$$\text{sector area} = \pi r^2 \left(\frac{m\text{arc}}{360}\right) = \pi(3^2)\left(\frac{20}{360}\right) = \frac{1}{2}\pi$$

43. Find $m\angle x$ for the circles below.

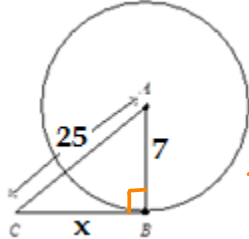


$$x = \frac{76}{2} = 38$$



$$x = \frac{100}{2} = 50$$

44. Find x . Assume that segments that appear tangent are tangent.



$$x^2 + 7^2 = 25^2$$

$$x^2 + 49 = 625$$

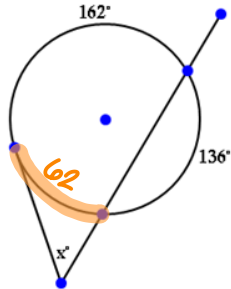
$$x^2 = 576$$

$$x = 24$$

45. Solve for x .

$$x = \frac{162 - 62}{2}$$

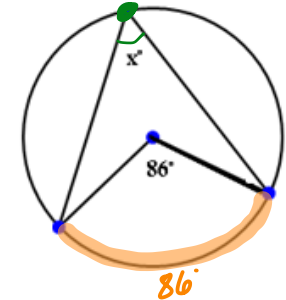
$$x = 50$$



46. Solve for x .

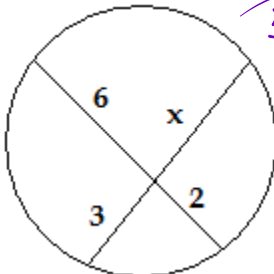
$$x = \frac{86}{2}$$

$$x = 43$$



47. Solve for x :

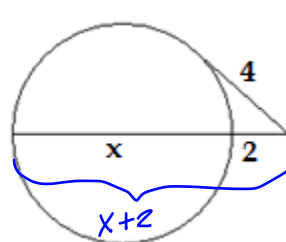
A.



$$3x = 2(6)$$

$$x = 4$$

B.



$$2(x+2) = 4 \cdot 4$$

$$2x + 4 = 16$$

$$2x = 12$$

$$x = 6$$