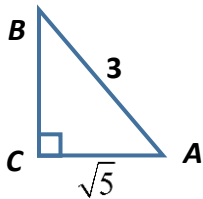


1) Use the Pythagorean Theorem to find the missing side length. Find each trig ratio. Leave answers in simple radical form, no decimals.

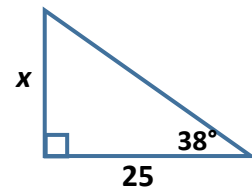


$$\sin(A) =$$

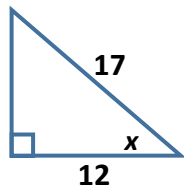
$$\cos(A) =$$

$$\tan(A) =$$

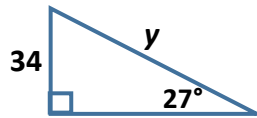
2) Find the value of  $x$ . Round answer to nearest hundredth.



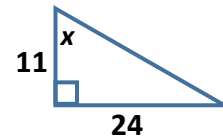
3) Find the value of  $x$ . Round answer to nearest tenth.



4) Find the value of  $x$ . Round answer to nearest hundredth



5) Find the value of  $x$ . Round answer to nearest tenth.

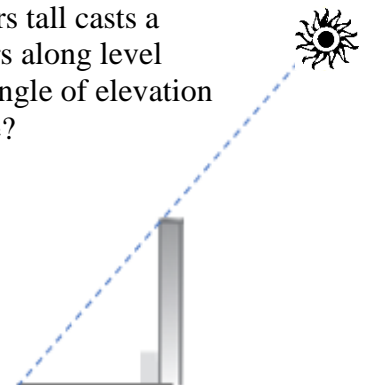


6) A ladder makes an  $80^\circ$  with the ground. If the ladder is 20 feet long how far is the bottom of the ladder from the base of a wall?

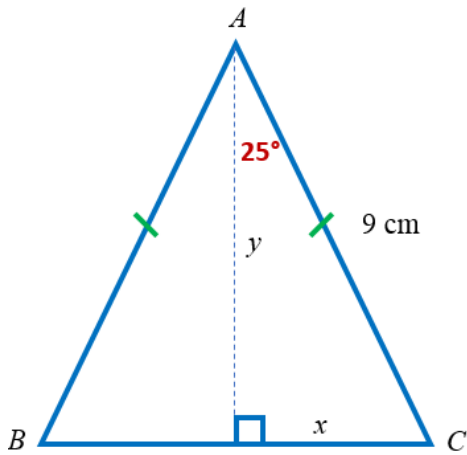
7) From the top of a building, you look down at an object on the ground. If your eyes are 55 feet above the ground and angle of depression is  $50^\circ$ , how far away (line of sight distance) is the object?

8) A train travels 80 meters on an uphill track. If the train gained 17 meters in elevation, what is the angle of elevation of the track?

9) A building 14.5 meters tall casts a shadow of 11.4 meters along level ground. What is the angle of elevation of the sun at that time?

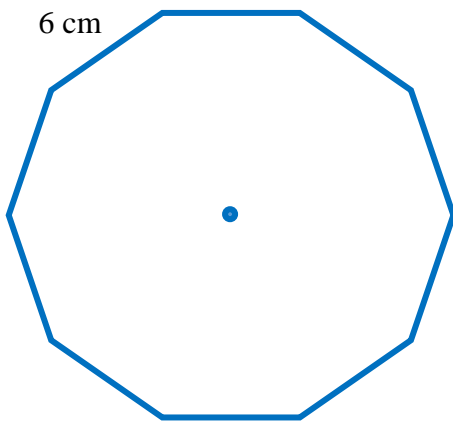


10) Find the value of  $x$  and  $y$  and then the area and perimeter of the triangle.



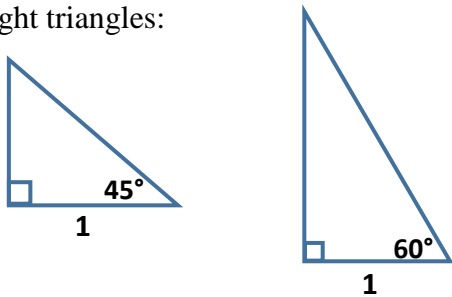
$x =$  \_\_\_\_\_  
 $y =$  \_\_\_\_\_  
 Area = \_\_\_\_\_  
 Perim = \_\_\_\_\_

11) Find the area of a regular decagon (10 sides) with side length 6 cm. Round answers to the nearest hundredth.



Apothem = \_\_\_\_\_  
 Area = \_\_\_\_\_

12) Fill in the missing sides on the special right triangles:



13) Find the exact (no decimals approximations) value of each expression. Leave answer in simple radical form.

a)  $\cos^2(30^\circ) + \tan^2(45^\circ)$     b)  $4\sin(60^\circ) + 2\tan(60^\circ)$

14) Simplify the following expressions

a)  $\frac{5}{9}(2\pi) - \pi\left(\frac{4}{3}\right)^2$     b)  $\frac{\pi}{6} + \frac{\pi}{3}$     c)  $\frac{5}{3}\left(\frac{2\pi}{3}\right) - \pi\left(\frac{1}{3}\right)^2$     d)  $4\left(\frac{\pi}{3}\right) + 5\left(\frac{5\pi}{6}\right)$

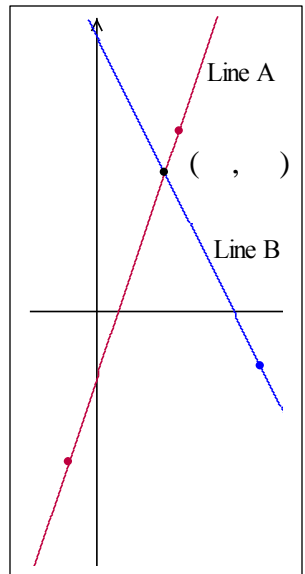
Algebra Review:

15) Use the information about the lines to solve the problem. You must show all work algebraically.

Line A passes through  $(6, 13)$  and  $(-2, -11)$ .

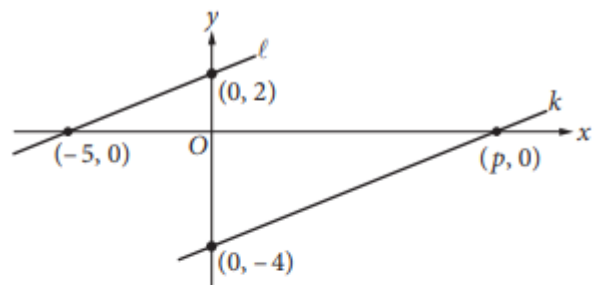
Line B passes through  $(12, -4)$  and has a slope  $= -2$

Find the **equation of each line** and then **find the point of intersection** of the lines. **Organize your work.**



16) Find the equation of the line that is perpendicular to  $3x - 2y = 8$  that passes through  $(-6, 2)$ .

17)



In the  $xy$ -plane above, line  $\ell$  is parallel to line  $k$ . What is the value of  $p$ ?

- A) 4
- B) 5
- C) 8
- D) 10

18) Rewrite in standard form:  $ax^2 + bx + c$

a)  $(x + 3)^2 - 3x(2x - 5)$

b)  $5(2x - 3)^2$

19) Simplify each expression:

a)  $(5x^3y^2)(7x^3y^8)$       b)  $(4x^2y^3)^2(x^5y^2)^3$

c)  $\frac{8x^8y^4z^0}{10x^5y^3z^3}$

d)  $\frac{3x^{-8}z}{6x^2z^{-3}}$