

Name: _____

SM2 2.3: Solving Using Radicals

Solve each equation.

1) $x^2 = 25$

2) $a^2 = 81$

3) $m^3 = 27$

4) $y^3 = 64$

5) $x^2 = 72$

6) $2h^2 = 90$

7) $x^3 - 1 = 7$

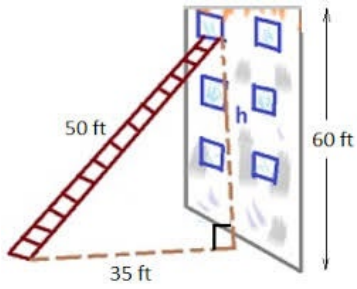
8) $3p^2 + 10 = 442$

9) $(x - 2)^2 = 9$

10) $(d + 5)^3 - 2 = 123$

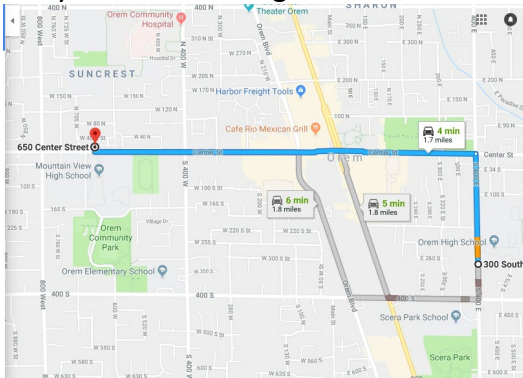
Solve each problem.

- 11) How far up the wall will the ladder reach?



- 12) If a ladder is 10 m long and the base of the ladder is 5 m from the wall, how far up the wall will the ladder reach?

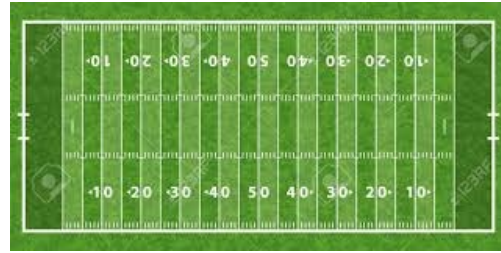
- 13) Given that Orem High is 0.4 mi from Center Street, and the distance from 400 East to Mountain View is 1.3 mi, calculate how far Superman would have to fly if he went straight there.



- 14) Joe is riding a zipline from the bulwark of a castle 50 m from shore. The bulwark is 20 m tall. How far will he travel, on the zipline? Draw and label a picture before solving the problem.

15) Reggie would like to save his number of strokes as he is golfing. The fairway runs 220 yds north before turning 165 yds west. If he wants to go through the trees straight to the hole, how far would he need to hit the ball? Draw a picture before solving the problem.

16) The area of a football field is 6400 yd^2 . Given that the football field is 120 yds long, how wide is it?



17) When Thor calls down the Bifrost so that he can return to Asgard, a circle is left with the design below. The area of the circle is 31.4159 m^2 . What is the approximate diameter of the Bifrost symbol?

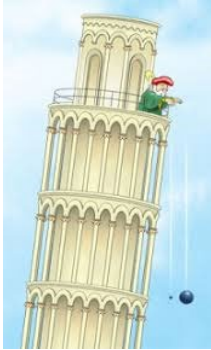
What is the approximate circumference of the symbol?



18) Batman is trying to save the city from the Joker's bomb. The wick is connected to the center of the bomb and when it reaches there, the bomb will blow up. If the volume of the bomb is 4.19 ft^3 , and the wick burns at a rate of $\frac{1}{2} \text{ ft}$ per minute, how long does he have to get rid of the bomb? (Calculate only when the wick is inside the bomb, not outside at all.)



- 19) Galileo dropped a cannon ball from the top of the Leaning Tower of Pisa. The ball was dropped from a height of 191 *ft*. Given the equation, for the height of a given object of a falling object, subject to gravity:
 $h(t) = -16t^2 + 191$, with t measured in seconds, how long will it take the object to be at a height of 111 *ft*?



- 20) You have 62.8 *in*³ of wax and want to make a cylindrical candle with a radius of 1 *in*. How tall will the candle be?



- 21) When answering a question similar to #19, John came up with a result of -3.12 *s*, and Paul's answer was 3.12 *s*. Who got the answer correct? Was it one of them or both of them? Why?

- 22) Why do we sometimes insist on using the plus and minus while other times we only give one answer?