Review 2

<u>Radicals and the Pythagorean Theorem</u>

<u>Simplify</u> each expression. Put a rectangle around your answer.

1) $\sqrt{648}$

2) $\sqrt{320}$

3) $\sqrt{196a^4}$

4) $\sqrt{48w^5}$

5) $\sqrt{150x^3y^4}$

6) $-6\sqrt{98ab^6}$

7) $\pm 5xy^3\sqrt{120x^4y^3}$

8) $\sqrt{7}\cdot\sqrt{21}$

9) $6\sqrt{28}\cdot 9\sqrt{7}$

10) $\sqrt{50x^5}\cdot\sqrt{50x^5}$

11) $\sqrt{26ab^2}\cdot\sqrt{39ab^5}$

12) $\sqrt{\dfrac{49}{121}}$

13) $\sqrt{\dfrac{200}{72}}$

14) $\dfrac{4}{\sqrt{6}}$

15) $\sqrt{\dfrac{16}{3}}$

16) $\dfrac{15\sqrt{5}}{\sqrt{20}}$

Use the Pythagorean Theorem to answer the following. Each problem requires a diagram if one is not given. Show all work. Simplify your answer **and** then approximate to the nearest tenth.   Include units in your solution.

17) Two airplanes leave the same airport. One heads north, and the other heads east. After some time, the northbound airplane has traveled 16 miles, and the eastbound airplane has traveled 12 miles. How far apart are the two airplanes?

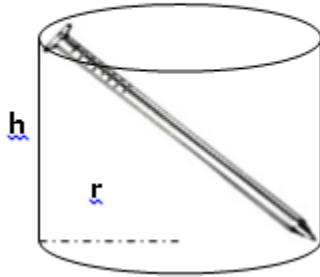18) A rectangular prism is shown in the diagram below.

87.75 cm

360 cm

150 cm
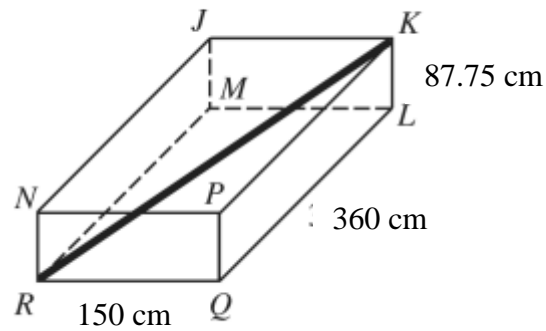
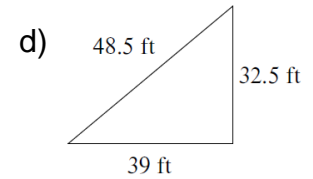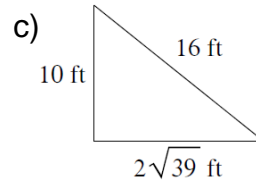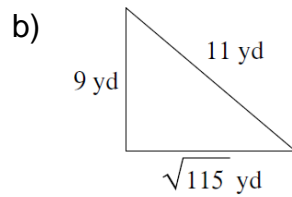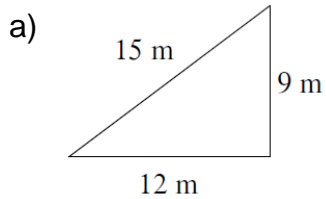What is the length of the line segment that between vertex K and vertex R?

19) A guy wire is attached to a telephone pole. The distance from the point where the wire touches the ground to the base of the telephone pole is 4 feet less than the length of the wire. How far up the telephone pole is the wire attached if the distance from the ground to where the wire is attached to the pole is 2 feet less than the length of the wire.

$w - 2$

w

$w - 4$
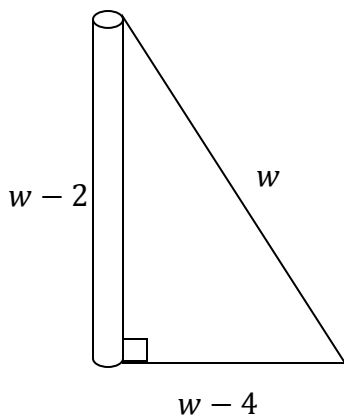
20) Find the length of the longest nail that could fit entirely within a cylindrical can of radius 3 cm and height 8 cm.

21) State if **each** triangle is a right triangle. Justify **each** answer.

a)

15 m

9 m

12 m

b)

11 yd

9 yd

$\sqrt{115}$ yd

c)

16 ft

10 ft

$2\sqrt{39}$ ft

d)

48.5 ft

32.5 ft

39 ft

22) Calculate the distance between the two given points. Simplify your answer **and** then approximate to the nearest tenth. Show ALL work using the distance formula.

a) $(-8, 15)$ *and* $(12, -33)$

b) $(-5, 14)$ *and* $(-32, 50)$