Name: Date: Period:

Please show all your work on a separate piece of paper.

1. If the hypotenuse of a right triangle is 10 and one leg is 8, find the measure of the other leg.

a. 36 b. 6 c. 3 d. $\sqrt{164}$

2. If the length of the side of a square is 5, what is the length of the diagonal of the square?

a. 5 b. $5\sqrt{2}$ c. 25 d. 50

3. If the sides of a rectangle are $\sqrt{3}$ and 7, then the length of the diagonal is:

a. 52 b. 58 c. $2\sqrt{10}$ d. $2\sqrt{13}$

4. The diagonal of a square is 12. What is the perimeter of the square?

a. 32 b. $24\sqrt{2}$ c. 72 d. $48\sqrt{2}$

5. A rectangular piece of property is 200 feet by 400 feet. Tony walks from one corner of the lot along the diagonal to the other corner. To the nearest tenth of a foot, how far does Tony walk?

6. A wire is attached to a 20-foot pole as shown in Figure 1 below. The bottom of the wire is 9 feet from the base of the pole. The wire is moved to 5 feet from the bottom of the pole as shown in Figure 2. To the nearest foot, how much less wire is needed to support the pole?

Figure 1

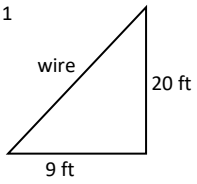
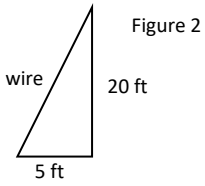
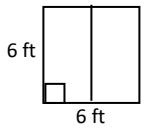
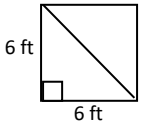


Figure 2

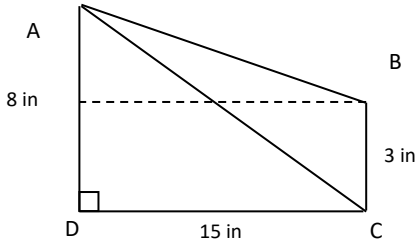


7. Gail has a 6-foot square garden plot that she wants to have fenced in. She then wants to further fence it into two equal lots as shown in the figures below. To the nearest tenth of a foot, how much more fencing would she need if she divided her plot into two triangles?

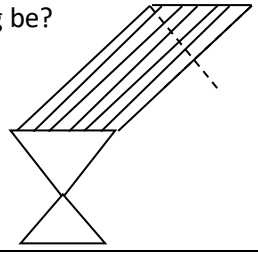




8. In quadrilateral ABCD sides $\overline{AD}$ and $\overline{BC}$ are both perpendicular to $\overline{DC}$. Diagonal $\overline{AC}$ is drawn as shown in the figure below. If $\overline{AD}$ is 8 inches, $\overline{DC}$ is 15 inches and $\overline{BC}$ is 3 inches, how much longer is $\overline{AC}$ then $\overline{AB}$? Round your answer to the nearest tenth of an inch. (Hint: You will have to "make" your right triangle that includes $\overline{AB}$ … See dotted line)



9. Kevin wants to build a picnic table that is **4 feet** wide and has crossed legs as pictured below. If he wants the table to stand **30 inches** above the ground, how long to the nearest **tenth of a foot** should each leg be?



10. Is it possible for a right triangle to have sides that measure 2 inches, 3 inches and 4 inches? Explain your answer.