GRADE 7 ACCELERATED · UNIT 6 · PRACTICE TEST

Relationships in Triangles

18 points

Name_____
Date_____
Period_____

Show your work for problems that require calculations. Each numbered question or lettered part is worth 1 point.

Triangle Inequality and the Converse

3 points

1. Which set of side lengths can form a triangle? *1 pt*

- ○ A. 4 cm, 7 cm, 11 cm
- ○ B. 12 cm, 5 cm, 6 cm
- ○ C. 6 cm, 8 cm, 13 cm
- ○ D. 3 cm, 10 cm, 15 cm

2. Select ALL of the sets of side lengths that make a right triangle. *1 pt*

- ☐ A. 17, 8, 15
- ☐ B. 5, 6, 7
- ☐ C. 20, 21, 29
- ☐ D. 7, 24, 26
- ☐ E. 4, 6, 8

3. Two sides of a triangle are 6 inches and 15 inches long. Which inequality shows every possible length x, in inches, of the third side? *1 pt*

- ○ A. $6 < x < 15$
- ○ B. $9 < x < 21$
- ○ C. $9 \leq x \leq 21$
- ○ D. $0 < x < 21$

The Pythagorean Theorem

6 points

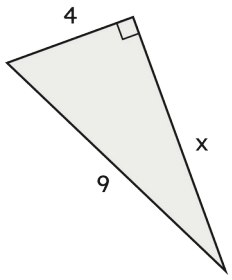
4. Find the missing side of each right triangle.

a. Its legs are 9 inches and 12 inches. How long is the hypotenuse? *1 pt*

b. Its hypotenuse is 61 meters and one leg is 60 meters. How long is the other leg? *1 pt*

5. A right triangle has legs of 7 centimeters and 13 centimeters. How long is the hypotenuse, in centimeters? Round your answer to the nearest tenth. *1 pt*

6. Which equation can be used to find x? *1 pt*



- ○ A. $4 + x = 9$
- ○ B. $4^2 + 9^2 = x^2$
- ○ C. $4^2 + x^2 = 9$
- ○ D. $4^2 + x^2 = 9^2$

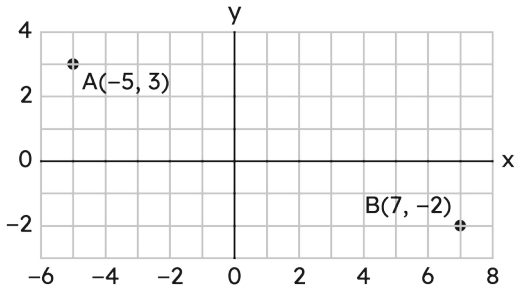
7. A rectangular garden measures 9 meters by 10 meters. A path runs straight across it from one corner to the opposite corner.

a. How long is the path, in meters? Round your answer to the nearest tenth. *1 pt*

b. How much shorter is the path than walking along two sides of the garden? Round your answer to the nearest tenth. *1 pt*

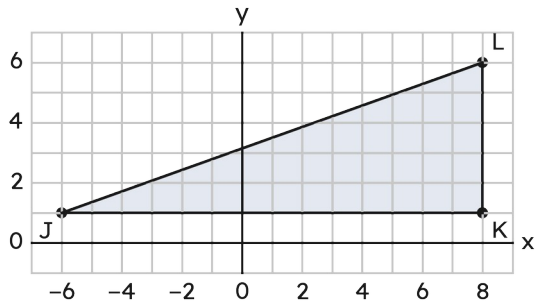
Distance on the Coordinate Plane *6 points*

8. Find the distance between points A and B. *1 pt*



9. Find the distance between (−1, 3) and (4, 1). Round your answer to the nearest tenth. *1 pt*

10. Triangle JKL has corners J(−6, 1), K(8, 1) and L(8, 6).



a. Find the length of side JK. *1 pt*

b. Find the perimeter of triangle JKL. Round your answer to the nearest tenth. *1 pt*

11. On a town map, each unit is one block. The library is at (−1, −5) and the pool is at (8, 7).

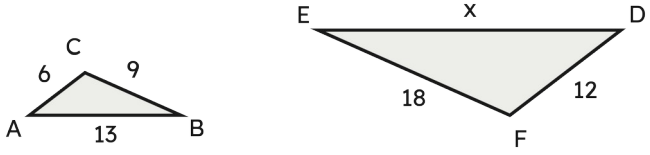
a. How far is it from the library to the pool along the streets? *1 pt*

b. How far is it in a straight line? *1 pt*

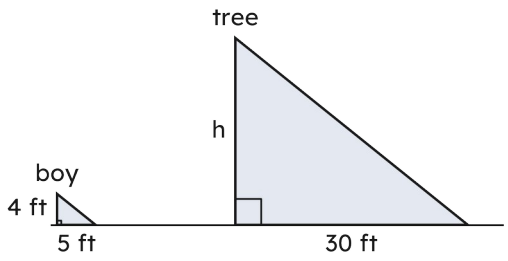
Similar Triangles

3 points

12. Triangle ABC is similar to triangle DEF. Find x. *1 pt*



13. A boy 4 ft tall casts a shadow 5 ft long. At the same moment, a tree casts a shadow 30 ft long. How tall is the tree? *1 pt*



14. Which triangle is similar to a triangle with sides 6, 7 and 10? *1 pt*

- ○ **A. 12, 14, 20**
- ○ **B. 10, 11, 14**
- ○ **C. 12, 14, 18**
- ○ **D. 6, 7, 12**