

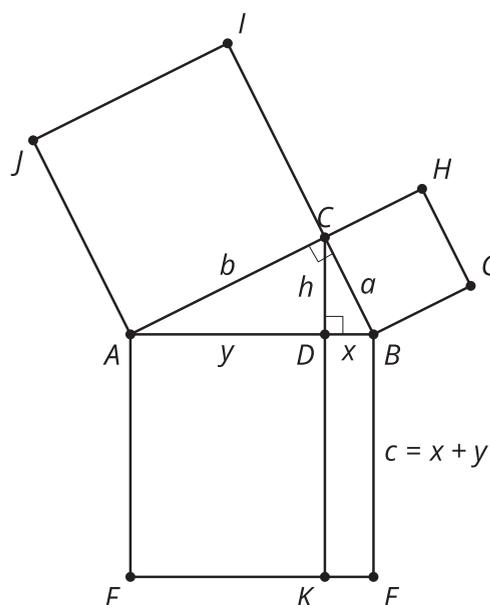
## Lesson 14 Practice Problems

1. Which of the following are right triangles?

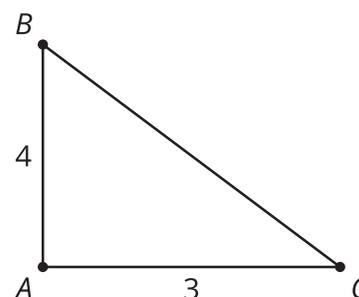
- A. Triangle  $ABC$  with  $AC = 6$ ,  $BC = 9$ , and  $AB = 12$
- B. Triangle  $DEF$  with  $DE = 8$ ,  $EF = 10$ , and  $FD = 13$
- C. Triangle  $GHI$  with  $GI = 9$ ,  $HI = 12$ , and  $GH = 15$
- D. Triangle  $JKL$  with  $JL = 10$ ,  $KL = 13$ , and  $JK = 17$

2. In right triangle  $ABC$ , a square is drawn on each of its sides. An altitude  $CD$  is drawn to the hypotenuse  $AB$  and extended to the opposite side of the square on  $FE$ . In class, we discussed Elena's observation that  $a^2 = xc$  and Diego's observation that  $b^2 = yc$ . Mai observes that these statements can be thought of as claims about the areas of rectangles.

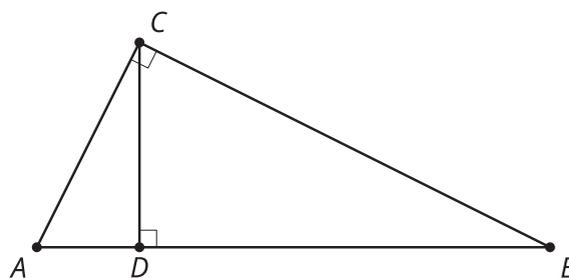
- a. Which rectangle has the same area as  $BGHC$ ?
- b. Which rectangle has the same area as  $ACIJ$ ?



3. Andre says he can find the length of the third side of triangle  $ABC$  and it is 5 units. Mai disagrees and thinks that the side length is unknown. Do you agree with either of them? Show or explain your reasoning.

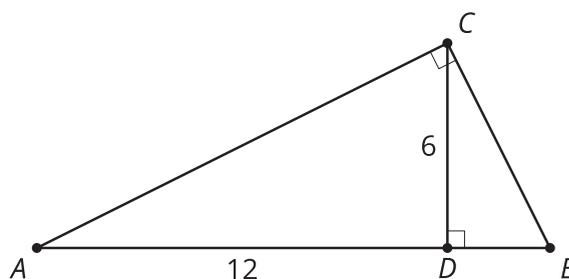


4. In right triangle  $ABC$ , altitude  $CD$  is drawn to its hypotenuse. Find 2 triangles which must be similar to triangle  $ABC$ .



(From Unit 3, Lesson 13.)

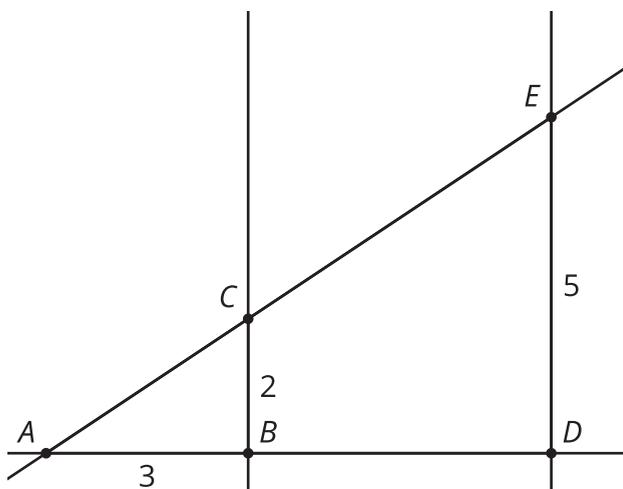
5. In right triangle  $ABC$ , altitude  $CD$  with length 6 is drawn to its hypotenuse. We also know  $AD = 12$ . What is the length of  $DB$ ?



- A.  $\frac{1}{2}$
- B. 3
- C. 4
- D. 6

(From Unit 3, Lesson 13.)

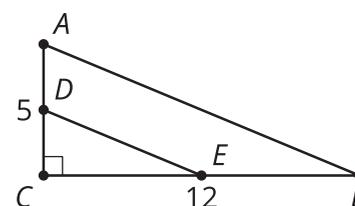
6. Lines  $BC$  and  $DE$  are both vertical. What is the length of  $BD$ ?



- A. 4.5
- B. 5
- C. 6
- D. 7.5

(From Unit 3, Lesson 12.)

7. In right triangle  $ABC$ ,  $AC = 5$  and  $BC = 12$ . A new triangle  $DEC$  is formed by connecting the midpoints of  $AC$  and  $BC$ .

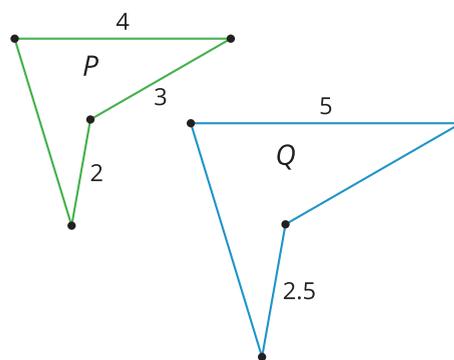


- a. What is the area of triangle  $ABC$ ?
- b. What is the area of triangle  $DEC$ ?
- c. Does the scale factor for the side lengths apply to the area as well?

(From Unit 3, Lesson 11.)

8. Quadrilaterals  $Q$  and  $P$  are similar.

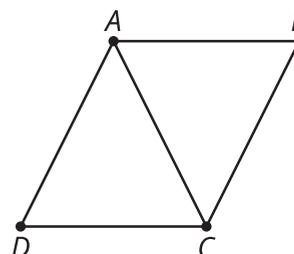
What is the scale factor of the dilation that takes  $Q$  to  $P$ ?



- A.  $\frac{2}{5}$
- B.  $\frac{3}{5}$
- C.  $\frac{4}{5}$
- D.  $\frac{5}{4}$

(From Unit 3, Lesson 6.)

9. Priya is trying to determine if triangle  $ADC$  is congruent to triangle  $CBA$ . She knows that segments  $AB$  and  $DC$  are congruent. She also knows that angles  $DCA$  and  $BAC$  are congruent. Does she have enough information to determine that the triangles are congruent? Explain your reasoning.



(From Unit 2, Lesson 6.)