Grade 8 geometry test

NAME	DATE	SCORE / 6

Answer each question. Show your work.

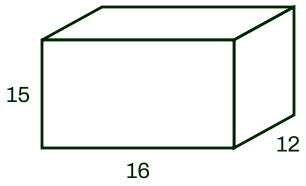
1 A right triangle has legs of 3 and 4 units. What is the length, in units, of the hypotenuse?

2 A right triangle has a hypotenuse of 17 m and one leg of 8 m. What is the length, in meters, of the other leg?

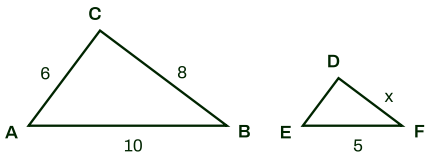
3 In triangle ABC, angle A measures 80° and angle B measures 45°. In triangle DEF, angle D measures 45° and angle E measures 80°. Are triangles ABC and DEF similar, and why?

- ◯ No: the equal angles are listed in a different order
- ◯ No: side lengths are needed to decide
- ◯ Yes: two pairs of angles are equal
- ◯ No: only one pair of angles is equal

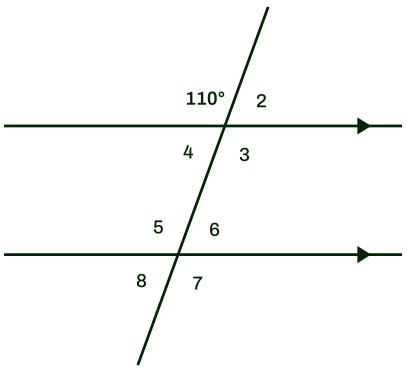
4 The box below is a rectangular prism with edges measured in centimeters. What is the length, in centimeters, of a straight line inside the box from a bottom corner to the opposite top corner?



5 Triangle ABC is similar to triangle EFD, with the vertices in matching order. The lengths are in inches. What is the length x, in inches?



6 In the picture, two parallel lines are cut by a transversal. The measure of one angle is shown, and the others are numbered. What is the measure, in degrees, of angle 5?



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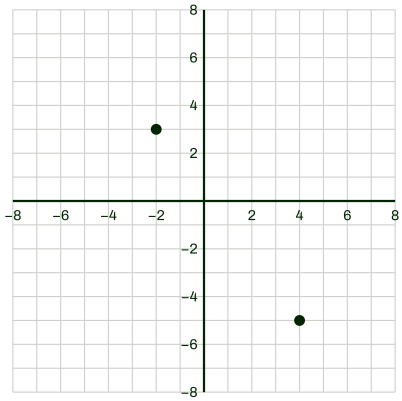
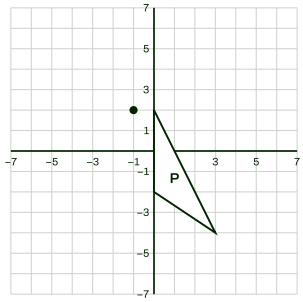
Answer each question. Show your work.

7 The points (−2, 3) and (4, −5) are plotted on the coordinate plane below. What is the distance, in units, from (−2, 3) to (4, −5)?



8 Triangle P, with vertices (3, −4), (0, −2) and (0, 2), and the point (−1, 2) are shown on the coordinate plane below. Triangle P is rotated 90° clockwise about the point (−1, 2). What are the coordinates of the image of the vertex (0, 2)?



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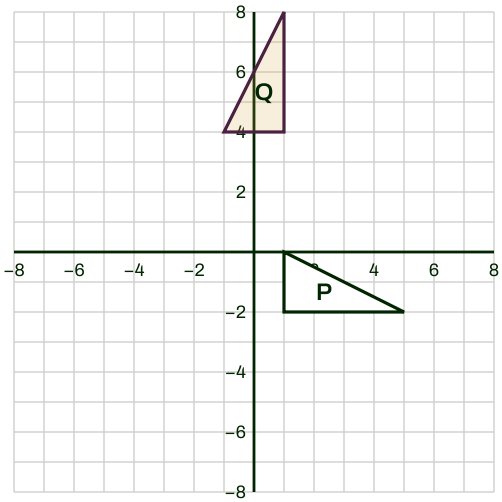
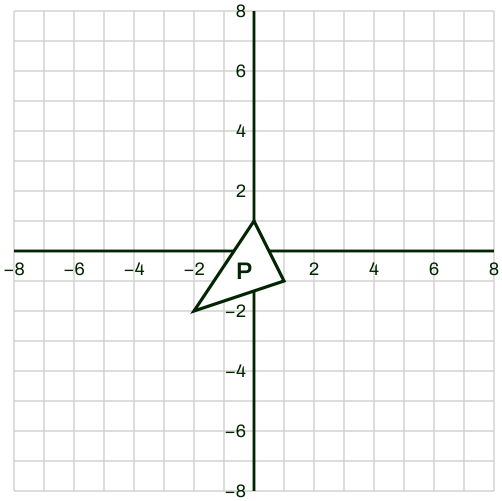
Answer each question. Show your work.

9 Triangle P and triangle Q are drawn on the grid below. Which motions map P onto Q?



- ○ Rotate 90° counterclockwise about the origin, then translate 1 left and 3 up
- ○ Rotate 180° about the origin, then translate 1 left and 3 up
- ○ Reflect in the x-axis, then translate 1 left and 3 up
- ○ None: P and Q have different side lengths

10 Triangle P, with vertices (1, −1), (−2, −2) and (0, 1), is drawn on the coordinate plane below. Triangle P is dilated by a scale factor of 3, with the center of dilation at the origin. What are the vertices of the image?



- ○ (3, −1), (−6, −2), (0, 1)
- ○ (3, −3), (−6, −6), (0, 3)
- ○ (4, 2), (1, 1), (3, 4)
- ○ (1, −3), (−2, −6), (0, 3)

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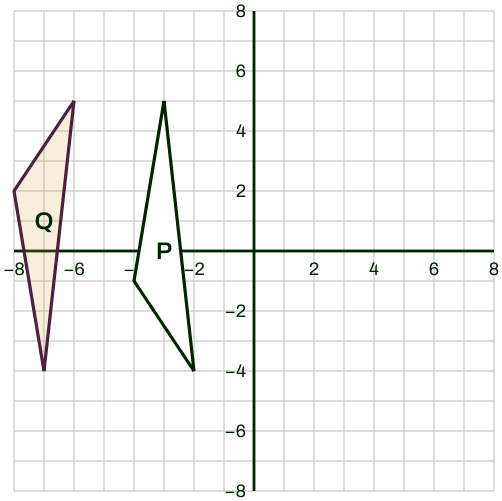
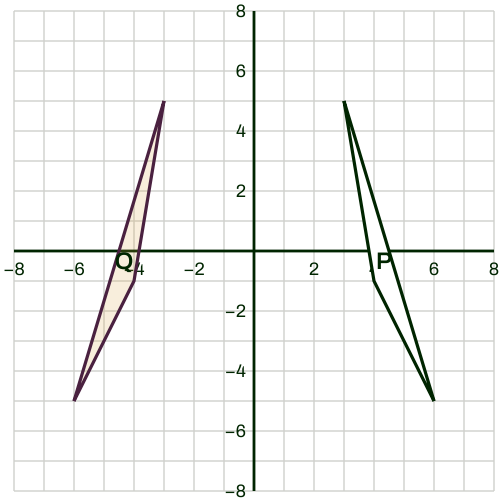
Answer each question. Show your work.

11 Triangle P and triangle Q are drawn on the coordinate plane below. No single translation, reflection or rotation maps P onto Q. Which two moves, in order, map P onto Q?



- ○ Reflect across the x-axis, then translate 4 right and 1 up
- ○ Reflect across the y-axis, then translate 4 left and 1 up
- ○ Reflect across the x-axis, then translate 4 left and 1 up
- ○ Rotate 180° about the origin, then translate 4 left and 1 up

12 Triangle P was reflected across the y-axis to make triangle Q, as shown on the coordinate plane below. Which statement about triangles P and Q is true?



- ○ Side lengths stay the same; angle sizes, orientation and position change
- ○ Side lengths, angle sizes and orientation stay the same; position changes
- ○ Side lengths, angle sizes, orientation and position all stay the same
- ○ Side lengths and angle sizes stay the same; orientation and position change

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1	5	2	15	3	Yes: two pairs of angles are equal
4	25	5	4	6	110
7	10	8	(−1, 1)	9	Rotate 90° counterclockwise about the origin, then translate 1 left and 3 up
10	(3, −3), (−6, −6), (0, 3)	11	Reflect across the x-axis, then translate 4 left and 1 up	12	Side lengths and angle sizes stay the same; orientation and position change