

## Lesson 17 Practice Problems

1. The 3 lines  $x = 3$ ,  $y - 2.5 = -\frac{1}{5}(x - 0.5)$ , and  $y - 2.5 = x - 3.5$  intersect at point  $P$ . Find the coordinates of  $P$ . Verify algebraically that the lines all intersect at  $P$ .

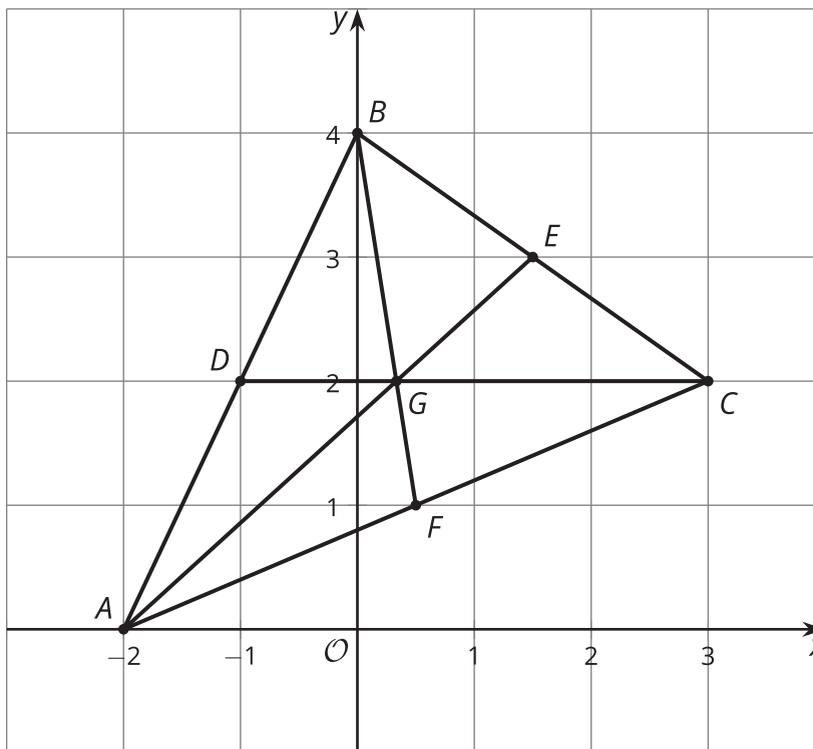
2. Triangle  $ABC$  has vertices at  $(0, 0)$ ,  $(5, 5)$ , and  $(10, 1)$ . Kiran calculates the point of intersection of the medians using the following steps:

- a. Draw the triangle.
- b. Calculate the midpoint of each side.
- c. Draw the medians.
- d. Write an equation for 2 of the medians.
- e. Solve the system of equations.

Use Kiran's method to calculate the point of intersection of the medians.

(From Unit 6, Lesson 16.)

3. Triangle  $ABC$  and its medians are shown. Write an equation for median  $AE$ .



(From Unit 6, Lesson 16.)

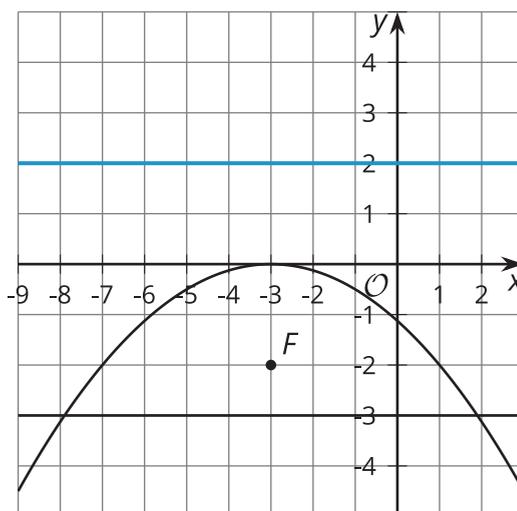
4. Given  $A = (1, 2)$  and  $B = (7, 14)$ , find the point that partitions segment  $AB$  in a  $2 : 1$  ratio.

(From Unit 6, Lesson 15.)

5. A quadrilateral has vertices  $A = (0, 0)$ ,  $B = (4, 6)$ ,  $C = (0, 12)$ , and  $D = (-4, 6)$ . Mai thinks the quadrilateral is a rhombus and Elena thinks the quadrilateral is a square. Do you agree with either of them? Show or explain your reasoning.

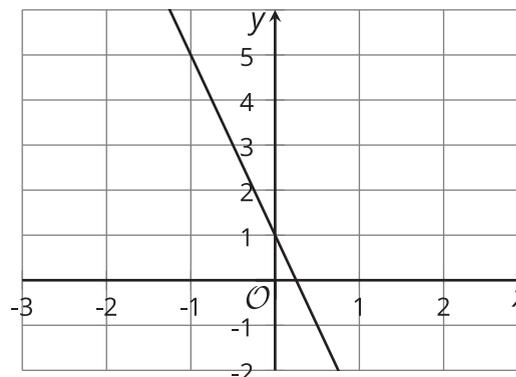
(From Unit 6, Lesson 14.)

6. The image shows a graph of the parabola with focus  $(-3, -2)$  and directrix  $y = 2$ , and the line given by  $y = -3$ . Find and verify the points where the parabola and the line intersect.



(From Unit 6, Lesson 13.)

7. For each equation, is the graph of the equation parallel to the line shown, perpendicular to the line shown, or neither?



- a.  $y = 0.25x$
- b.  $y = 2x - 4$
- c.  $y - 2 = -4(x - 3)$
- d.  $2y + 8x = 7$
- e.  $x - 4y = 3$

(From Unit 6, Lesson 12.)

8. Write 2 equivalent equations for a line with  $x$ -intercept  $(3, 0)$  and  $y$ -intercept  $(0, 2)$ .

(From Unit 6, Lesson 9.)

9. Parabola A and parabola B both have the line  $y = -2$  as the directrix. Parabola A has its focus at  $(3, 4)$  and parabola B has its focus at  $(5, 0)$ . Select **all** true statements.

- A. Parabola A is wider than parabola B.
- B. Parabola B is wider than parabola A.
- C. The parabolas have the same line of symmetry.
- D. The line of symmetry of parabola A is to the right of that of parabola B.
- E. The line of symmetry of parabola B is to the right of that of parabola A.

(From Unit 6, Lesson 7.)