# Section 2.1 Practice Master

1. Determine the coordinates of the midpoint of each line segment.

a)

b)

c)
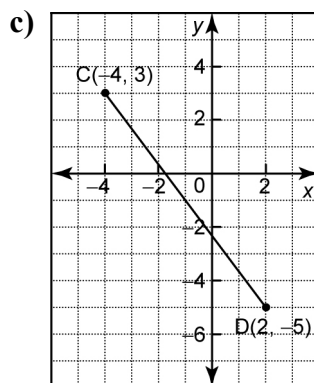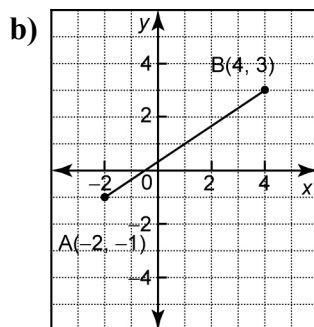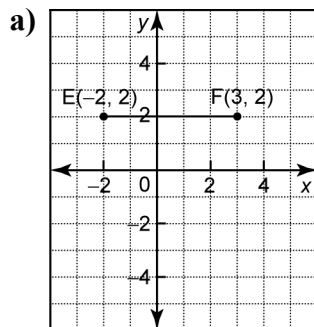
2. Determine the coordinates of the midpoint of the line segment defined by each pair of endpoints.

a) (1, 5) and (7, 3)

b) (−4, −3) and (5, 2)

c) (−3.2, 4.1) and (5.6, −2.3)

d) $\left(-\dfrac{2}{5}, -\dfrac{3}{4}\right)$ and $\left(\dfrac{4}{5}, \dfrac{3}{4}\right)$

3. Find the slope of each median shown.

a)

b)
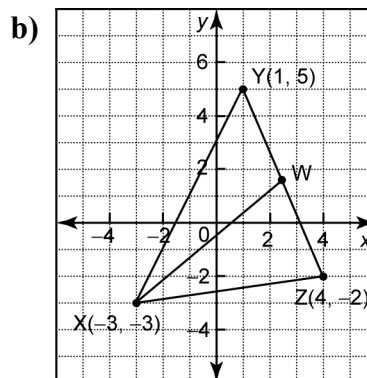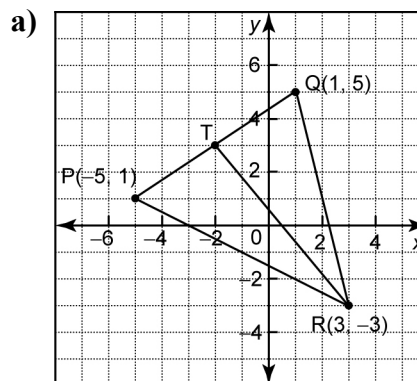
4. The endpoints of the diameter of a circle are A(−5, −3) and B(3, 7). Find the coordinates of the centre of this circle.

5. The vertices of △PQR are P(−3, 5), Q(5, 7), and R(3, −3).
   a) Find an equation in slope *y*-intercept form for the median from vertex P.
   b) Find an equation in slope *y*-intercept form for the median from vertex Q.
   c) Find an equation in slope *y*-intercept form for the median from vertex R.

6. One endpoint of a diameter of a circle centred at the origin is (−5, 2). Find the coordinates of the other endpoint of this diameter.

7. Determine an equation for the right bisector of the line segment with endpoints D(−3, 5) and M(7, −9).

8. a) Draw △JKL with vertices J(−6, 4), K(−4, −5), and L(6, 1).
   b) Draw the median from vertex J. Then, find an equation in slope *y*-intercept form for this median.
   c) Draw the right bisector of KL. Then, find an equation in slope *y*-intercept form for this right bisector.

9. Write an expression for the coordinates of the midpoint of the line segment with endpoints A(2*a*, 3*b*) and B(4*a*, 5*b*). Explain your reasoning.

10. a) Draw △ABC with vertices A(−8, 0), B(0, 0), and C(0, −8).
   b) Construct the midpoints of AB, BC, and AC and label them D, E, and F, respectively.
   c) Join the midpoints to form △DEF.
   d) Show that the length of line segment DE is one half the length of line segment AC.
   e) Show that the length of line segment DF is one half the length of line segment BC.
   f) Show that the length of line segment EF is one half the length of line segment AB.