

Chapter Test

Given: Points $M(-2, 1)$ and $N(2, 4)$

- Find (a) MN , (b) the slope of \overline{MN} , and (c) the midpoint of \overline{MN} .
- Write an equation of \overleftrightarrow{MN} .
- Write an equation of a circle with center M and radius MN .
- If M is the midpoint of \overline{NZ} , what are the coordinates of Z ?

In Exercises 5–8 write an equation of each line described.

- The line with slope $-\frac{3}{2}$ and y-intercept 4
- The line with y-intercept 5 and x-intercept 3
- The line through $(-2, 5)$ and parallel to $3x + y = 6$
- The line with y-intercept 7 and perpendicular to $y = -2x + 3$
- Given points $P(-2, 5)$ and $Q(4, 1)$, find (a) \overrightarrow{PQ} and (b) $|\overrightarrow{PQ}|$.
- The vectors $(3, 6)$ and $(-2, k)$ are parallel. Find the value of k .
- The vectors $(3, -5)$ and $(c, 6)$ are perpendicular. Find the value of c .
- Evaluate the vector sum $(5, -3) + 4(-2, 1)$.
- Find the point of intersection of the lines $x + 2y = 8$ and $3x - y = 3$.

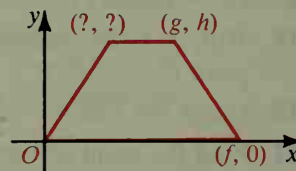
Draw the graph of each equation.

14. $2x - 3y = 6$

15. $y = 5$

16. Name 3 points on the line through $(2, 2)$ with slope $\frac{4}{3}$.

17. An isosceles trapezoid is shown. Give the missing coordinates without introducing any new letters.



Use points $J(-12, 0)$, $K(0, 6)$, and $L(-3, -3)$.

- Show that $\triangle JKL$ is isosceles.
- Use slopes to show that $\triangle JKL$ is a right triangle.

Use coordinate geometry to prove each statement.

- The diagonals of a rectangle bisect each other.
- The segments joining the midpoints of consecutive sides of a rectangle form a rhombus.