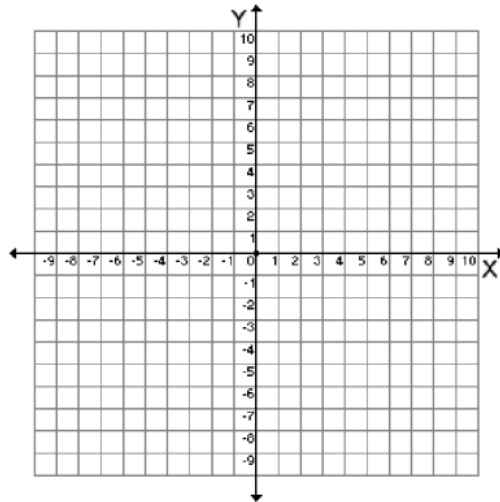


Review Coordinate Geometry Exam

1. The coordinates of the midpoint of \overline{AB} are $(-7,6)$. If the coordinates of A are $(2, -4)$, what are the coordinates of B?

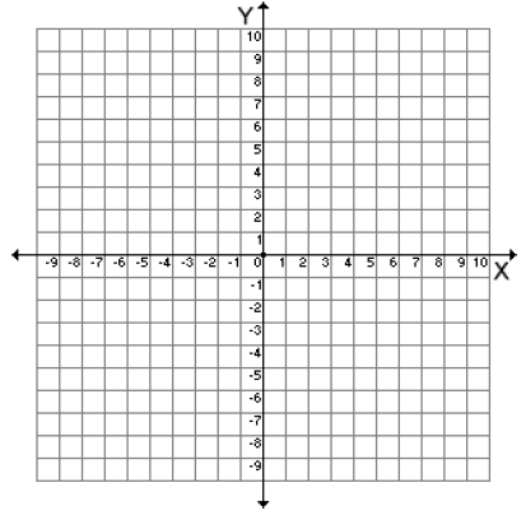
2. Given triangle ABC with coordinates $A(1,1)$, $B(6,4)$ and $C(3,-5)$, find each of the following:

- Slope of the altitude to \overline{AB} .
- Length of the median to \overline{AB} .



3. If the line joining $S(2,3)$ and $P(7,9)$ is perpendicular to the line joining $Q(8,k)$ and $R(2,4)$, find the value of k .

4. The vertices of triangle PQR are P(1,2), Q(-3,6) and R(4, 8) .
- Find the coordinates of S, the midpoint of \overline{PQ} .
 - Express in radical form, the length of the median \overline{RS} .
 - Find the slope of \overline{PR} .
 - A line through point Q is parallel to \overline{PR} . If the line passes through the point (x, 14), find the value of x.

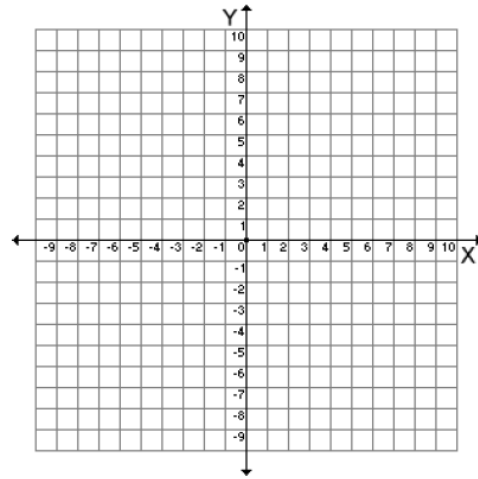


5. Find the coordinates of the midpoint of CD: C $\left(\frac{1+3\sqrt{2}}{2}, \frac{1}{2}\right)$ D $\left(\frac{5-\sqrt{2}}{3}, \frac{2+\sqrt{3}}{3}\right)$

6. Find the distance from S to T: S (x + y, a + b) T (x - y, b - a)

7. Simplify: a) $3\sqrt{50}$ b) $2\sqrt{12}$ c) $3\sqrt{15} \times 7\sqrt{6}$

8. In $\triangle ABD$ with coordinates $A(-4,1)$, $B(1,5)$, $C(6, -1)$ altitude CD is drawn. Find the coordinates of D .



9. Write an equation of the perpendicular bisector of the segment that joins the points $(3, -7)$ and $(5,1)$.

10. Write an equation of a line that passes through the point $B(3,1)$ and is perpendicular to the line $3y + 2x = 15$.

11. The vertices of $\triangle ABC$ are $A(0,6)$, $B(-8, 0)$, $C(0,0)$. Write an equation of the line that passes through one of the vertices of the triangle and parallel to \overline{AC} .

12. Write an equation of the line that contains point $(-5,2)$ and is parallel to the y – axis.

13. Write an equation of the line that contains point $(4,-1)$ and is perpendicular to the x – axis.

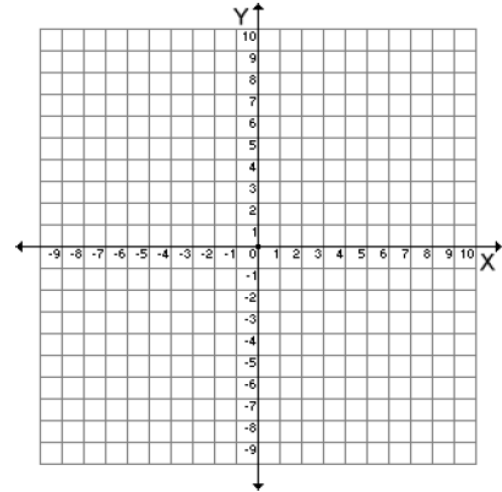
14. Write an equation of a line that contains the point $(2, 2)$ and the intersection of the graphs $x + y = 10$ and $x - y = 2$.

15. In $\triangle ABC$ with coordinates $A(-4,3)$, $B(2,7)$ and $C(4,-3)$.

a) Find the equation of the median to \overline{AC} .

b) Find the equation of the altitude to \overline{AB} .

c) Find the equation of the perpendicular bisector of \overline{AB} .



Answers

1. $(-16, 16)$
2. a) $\frac{-5}{3}$ b) $\frac{\sqrt{226}}{2}$
3. $k = -1$
4. a) $(-1, 4)$ b) $\sqrt{41}$ c) 2 d) $x = 1$
5. $\left(\frac{13+7\sqrt{2}}{12}, \frac{7+2\sqrt{3}}{12} \right)$
6. $\sqrt{4y^2 + 4a^2} = 2\sqrt{y^2 + a^2}$
7. a) $15\sqrt{2}$ b) $4\sqrt{3}$ c. $63\sqrt{10}$
8. equation of \overline{AB} : $y - 1 = \frac{4}{5}(x + 4)$; $y = \frac{4}{5}x + \frac{21}{5}$
equation of altitude: $y + 1 = -\frac{5}{4}(x - 6)$; $y = -\frac{5}{4}x + \frac{13}{2}$
coordinates of D: $\left(\frac{46}{41}, \frac{209}{41} \right)$
9. $y + 3 = -\frac{1}{4}(x - 4)$ or $y = -\frac{1}{4}x - 2$
10. $y - 1 = \frac{3}{2}(x - 3)$ or $y = \frac{3}{2}x - \frac{7}{2}$
11. $x = -8$
12. $x = -5$
13. $x = 4$
14. $y - 2 = \frac{1}{2}(x - 2)$ or $y - 4 = \frac{1}{2}(x - 6)$ or $y = \frac{1}{2}x + 1$
15. a) $y - 0 = \frac{7}{2}(x - 0)$ or $y = \frac{7}{2}x$
b) $y + 3 = -\frac{3}{2}(x - 4)$ or $y = -\frac{3}{2}x + 3$
c) $y - 5 = -\frac{3}{2}(x + 1)$ or $y = -\frac{3}{2}x + \frac{7}{2}$