NAME Key DATE _____ SCORE _____

Practice 52
Geometry and Algebra

Lessons 13-1 through 13-5

Complete.

1. The circle with equation $(x + 5)^2 + (y - 8)^2 = 81$ has center $(-5, 8)$ and radius 9.
2. If $A = (4, 5)$ and $B = (-2, 6)$, then $\overrightarrow{AB} =$ $(-6, 1)$ and $|\overrightarrow{AB}| =$ $\sqrt{37}$.
3. The vectors $(3, 12)$ and $(2, x)$ are parallel. Find the value of x. 8
4. The vectors $(6, z)$ and $(-2, 4)$ are perpendicular. Find the value of z. 3

Find each vector sum.

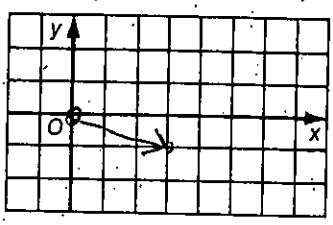
5. $(8, 2) + (-6, 5)$ $(2, 7)$
6. $(-5, -4) + (6, 9)$ $(1, 5)$
7. $2(3, 1) + (4, -3)$ $(10, -1)$
8. $3(-1, 4) + 2(3, 2)$ $(3, 16)$

Find the coordinates of the midpoint of the segment that joins the given points.

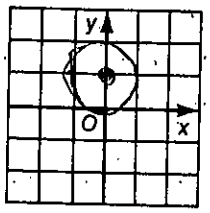
9. $(-6, 8)$ and $(6, 4)$ $(0, 6)$
10. $(3, -7)$ and $(5, -3)$ $(4, -5)$
11. $(2, 0)$ and $(7, 3)$ $(4.5, 1.5)$
12. $(8, -5)$ and $(4, -7)$ $(6, -6)$

In Exercises 13–17 point R has coordinates $(6, 4)$ and point S has coordinates $(-4, -2)$.

13. Find the coordinates of the midpoint of $\overline{RS}$. $(1, 1)$
14. Find the distance from R to S. $2\sqrt{34}$
15. Find an equation of the circle that has $\overline{RS}$ as a diameter. $(x-1)^2 + (y-1)^2 = 34$
16. Find the slope of a line perpendicular to $\overleftrightarrow{RS}$. $-5/3$
17. Find the slope of a line parallel to $\overleftrightarrow{RS}$. $3/5$
18. Draw an arrow to represent the vector $\frac{1}{2}(8, -2)$. $(4, -1)$



19. Sketch the circle with equation $x^2 + (y - 1)^2 = 1$.



$C(0, 1)$
$r = 1$