Name: Key

What is the slope of the line passing through (-5,-1) and (-2,-1)?

A) $\frac{4}{3}$ B) $\frac{3}{4}$ ● 0 (zero in numerator) D) undefined (zero in denominator)

$m = \frac{-1--1}{-5--2} = \frac{0}{-3} = 0$

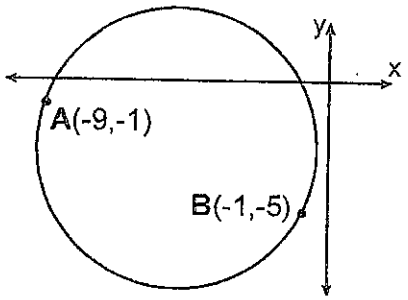
2) What are the coordinates of the midpoint of the line segment whose endpoints are (-5,-2) and (-3,-8)?

A) (-8,-10) B) (-1,3) C) (-5,-4) ● (-4,-5)

$\left(\frac{-5+-3}{2}, \frac{-2+-8}{2}\right)$

$\left(\frac{-8}{2}, \frac{-10}{2}\right) = (-4,-5)$

$\overline{AB}$ is the diameter of the circle shown in the accompanying diagram.



What are the coordinates of the center (midpoint) of this circle?

A) (-4,-2) B) (-3,-5) ● (-5,-3) D) (-2,-4)

$\left(\frac{-9+-1}{2}, \frac{-1+-5}{2}\right)$

$\left(\frac{-10}{2}, \frac{-6}{2}\right) = (-5,-3)$

4) What is the slope of a line that is perpendicular to the line whose equation is $2x - y = 7$?

A) -2 ● $-\frac{1}{2}$ C) $\frac{1}{2}$ D) 2

$2x - y = 7$

$-2x \quad -2x$

$-y = -2x + 7$

$\frac{-y}{-1} = \frac{-2x+7}{-1}$

$y = 2x - 7$

$m = 2 \quad \perp m = -\frac{1}{2}$

5) If M(-2,5) is the midpoint of $\overline{AB}$ and the coordinates of A are (4,7), find the coordinates of B.

A(4,7)
-6 ↓) -2
M(-2,5)
-6 ↓) -2
B(-8,3)

6) Show that the line joining A(-4,-1) and B(3,1) is parallel to the line joining C(4,4) and D(-3,2).

$m = \frac{-1-1}{-4-3} = \frac{-2}{-7} = \frac{2}{7}$ $\qquad$ $m = \frac{4-2}{4-3} = \frac{2}{7}$

$m = \frac{2}{7} \parallel m = \frac{2}{7}$

7) Line b contains the points (8,-2) and (5,3).

(a) The slope of a line parallel to b is ? $-\frac{5}{3}$

(b) The slope of a line perpendicular to b is $\frac{3}{5}$.

$m = \frac{-2-3}{8-5} = \frac{-5}{3}$

8) Determine the slope (m) and the y-intercept (of the line $2y + 4 = x$.

$-4 \quad -4$

$\frac{2y}{2} = \frac{x-4}{2}$

$y = \frac{1}{2}x - 2$

$m = \frac{1}{2} \qquad b = -2$

m= b=

) Write an equation of the line whose slope and y-intercept are 2 and 4 respectively.

$y = 2x + 4$

0) Write an equation of the line whose slope is $\frac{2}{3}$ and that passes through the point (6,4).

$y - y_1 = m(x - x_1)$

$y - 4 = \frac{2}{3}(x - 6)$

1) Write an equation of the line that passes through the points (2,1) and (6,3).

$m = \frac{1-3}{2-6} = \frac{-2}{-4} = \frac{1}{2}$ $y - 1 = \frac{1}{2}(x - 2)$ or $y - 3 = \frac{1}{2}(x - 6)$

2) Write an equation of the line that is parallel to $y = 3x - 5$ and that passes through the point (1,6).

$m = 3$

$y - 6 = 3(x - 1)$

3) Write an equation of the line perpendicular to the line $y = \frac{2}{3}x - 2$ and passes through (-4,-7).

$m = -\frac{3}{2}$ $y - -7 = -\frac{3}{2}(x - -4)$

$y + 7 = -\frac{3}{2}(x + 4)$

14) Classify the graphs of $y = 3x - 1$ and $y = \frac{1}{3}x + 1$ as parallel, perpendicular, or neither.

Neither

15) Classify the graphs of $2x + y = 7$ and $y = \frac{1}{2}x +$ as parallel, perpendicular, or neither.

$-2x \quad -2x$

$y = -2x + 7$

perpendicular

16) Classify the graphs of $y = 2x + 8$ and $y - 2x =$ as parallel, perpendicular, or neither.

$+2x \quad +2x$

$y = 2 \quad +5$

parallel

17) Write an equation of the line that is the perpendicular bisector of the line segment having endpoints of (-4,-2) and (8,4).

$m = \frac{-2-4}{-4-8} = \frac{-6}{-12} = \frac{1}{2}$

$\perp m = -2$

$\left(\frac{-4+8}{2}, \frac{-2+4}{2}\right)$

$\left(\frac{4}{2}, \frac{2}{2}\right) = (2,1)$

$y - 1 = -2(x - 2)$