Math 1201   **Chapter 6 Assignment**   Name: _____

Part I: Multiple Choice. Place the correct answer in the corresponding blank at the end of this section.
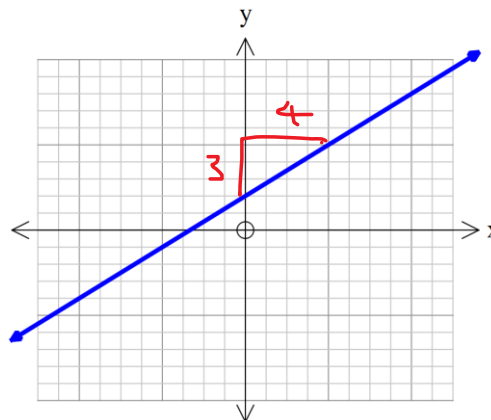
1. What is the slope of the line graphed?

   (A) $-\frac{4}{3}$ $m = \frac{3}{4}$

   (B) $-\frac{3}{4}$

   (C) $\frac{3}{4}$

   (D) $\frac{4}{3}$

2. What is the slope of the vertical line $x = 5$?

   (A) undefined $\frac{rise}{0} = undefined$

   (B) 0

   (C) 1

   (D) 2

3. What is the slope of a line passing through the points $(4, -5)$ and $(6, 3)$?

   (A) -4 $m = \frac{y_2 - y_1}{x_2 - x_1}$ $x_1 y_1 \qquad x_2 y_2$

   (B) -1

   (C) 1 $= \frac{3 - (-5)}{6 - 4}$ $= \frac{8}{2}$

   (D) 4 $= 4$

4. Rewrite the line $y = \frac{2}{3}x - 2$ in general form. LCD: 3

   (A) $2x + 3y + 6 = 0$ $3y = 3 \cdot \frac{2}{3}x - 3(2)$

   (B) $2x - 3y - 6 = 0$

   (C) $2x - 3y - 4 = 0$ $2x - 3y - 6 = 0$

   (D) $2x + 3y - 4 = 0$

5. What is the equation of a line that is perpendicular to the line $y = 2x + 5$ and passes through the point $(-3, 6)$?

(A) $y - 6 = 2(x + 3)$

(B) $y - 6 = -\frac{1}{2}(x + 3)$

(C) $y + 6 = 2(x - 3)$

(D) $y + 6 = -\frac{1}{2}(x - 3)$

Handwritten work: x_1, y_1 $m = -\frac{1}{2}$ $y - 6 = -\frac{1}{2}(x + 3)$

6. What is the equation of a line that has a slope parallel to $-\frac{3}{8}$ and a y-intercept of -3.

(A) $y = -\frac{3}{8}x - 3$

(B) $y = -\frac{8}{3}x - 3$

(C) $y = \frac{3}{8}x - 3$

(D) $y = \frac{8}{3}x - 3$

Handwritten work: $m = -\frac{3}{8}$ $b = -3$ $y = mx + b$ $y = -\frac{3}{8}x - 3$

7. The equation $y = 0.15x + 3$ represents the cost of publishing a book with x pages. What does 0.15 represent?

(A) The initial cost of publishing the book

(B) The cost per page

(C) The number of pages

(D) The commission of the publisher

8. Write the equation of a horizontal line that passes through the point $(-6, 8)$.

(A) $x = -6$

(B) $y = -6$

(C) $x = 8$

(D) $y = 8$

Handwritten work: x, y $y = 8$

9. The daily cost of renting a van is $25.00 plus $0.42 for every kilometer. What equation represents the cost, C, of renting a car for k kilometers?

(A) $C = 25 + 0.42k$ $C = 0.42k + 25$

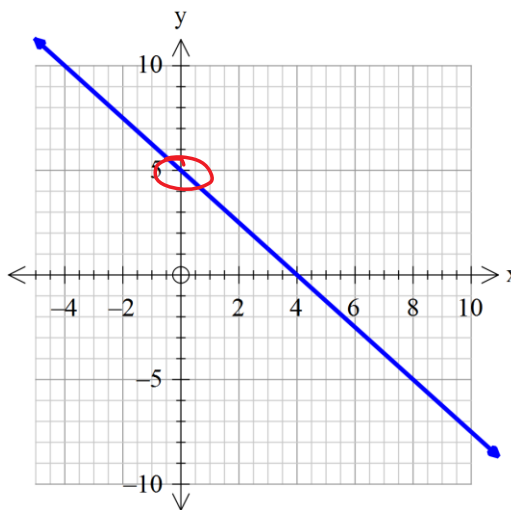(B) $C = 25 + 42k$

(C) $C = 25d + 0.42$

(D) $C = 25d + 42k$

10. Find the equation of the graph to the right?

(A) $y = -\frac{5}{4}x - 5$

(B) $y = -\frac{5}{4}x + 5$

(C) $y = \frac{5}{4}x - 5$

(D) $y = \frac{5}{4}x + 5$

11. There is a fixed cost of $250 to publish a book plus $0.80 for each book printed. How many books can be published and printed for a total cost of $650?

(A) 5

(B) 50

(C) 500

(D) 5000

$C = 0.8b + 250$
$650 = 0.8b + 250$
$650 - 250 = 0.8b$
$\frac{400}{0.8} = \frac{0.8b}{0.8}$

$\rightarrow b = 500$

12. What is $y + 5 = -3(x - 2)$ in slope-intercept form?

(A) $y = -3x - 11$ $y = -3x + 6 - 5$

(B) $y = -3x - 7$

(C) $y = -3x - 3$ $y = -3x + 1$

(D) $y = -3x + 1$

Answers to multiple choice.

1.___   2.___   3.___   4.___   5.___   6.___

7.___   8.___   9.___   10.___   11.___   12.___

Part II: **Constructed Response. Answer each question in the space provided. Show all workings.**

13.

3   (A) Find the equation, in slope-point form, of a line that is perpendicular to the line
$y = -\frac{3}{5}x + 1$ and passes through the point $(6, 2)$.

$$m = \frac{5}{3}$$

$$x_1 \, y_1$$

$$y - 2 = \frac{5}{3}(x - 6)$$

3   (B) Change the equation in 13. (A) to slope-intercept form. LCD: 3

$$3 \cdot y - 3(2) = 3 \cdot \frac{5}{3}(x - 6) \quad \text{or} \quad y - 2 = \frac{5}{3}(x - 6)$$

$$3y - 6 = 5(x - 6)$$

$$3y - 6 = 5x - 30$$

$$3y = 5x - 30 + 6$$

$$3y = 5x - 24$$

$$\frac{3y}{3} = \frac{5x}{3} - \frac{24}{3}$$

$$y = \frac{5}{3}x - 8$$

$$y - 2 = \frac{5}{3}x - \frac{30}{3}$$

$$y - 2 = \frac{5}{3}x - 10$$

$$3y - 2(3) = 3 \cdot \frac{5}{3}x - 3(10)$$

$$3y - 6 = \frac{5}{3}x - 30$$

3   14. Line segment OT has endpoints O $(6, -9)$ and T $(-15, 9)$.
     $x_1 \, y_1 \qquad x_2 \, y_2$
Line segment VL has endpoints V $(-3, -2)$ and L $(-9, -9)$.
     $x_1 \, y_1 \qquad x_2 \, y_2$

Are these two line segments parallel, perpendicular, or neither?

$$M_{OT} = \frac{9 - (-9)}{-15 - 6}$$

$$= \frac{18}{-21}$$

$$= -\frac{6}{7}$$

$$M_{VL} = \frac{-9 - (-2)}{-9 - (-3)}$$

$$= \frac{-7}{-6}$$

$$= \frac{7}{6}$$

15. The line $\overleftrightarrow{BD}$ is tangent to the circle at point A(5, 9).

B

(5, 9)
A $x_1 y_1$

C
(−3, −2)
$x_2 y_2$

D
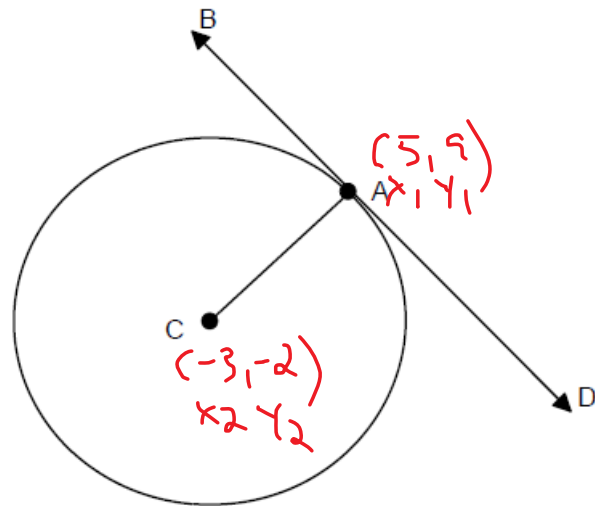
3   (A) If the centre of the circle is C(−3, −2), write the equation of the tangent line $\overleftrightarrow{BD}$ in slope-point form.

$$M_{AC} = \frac{-2-9}{-3-5}$$

$$= \frac{-11}{-8}$$

$$= \frac{11}{8}$$

$$\overline{AC} \perp \overline{BD}$$

$$\therefore m_{\overline{AC}} = -\frac{8}{11}$$

$$Y - 9 = -\frac{8}{11}(X - 5)$$

3   (B) Change the equation in 15. (A) to general form. LCD: 11

$$11 \cdot y - 11(9) = 11 \cdot \left(-\frac{8}{11}\right)(X - 5)$$

$$11y - 99 = -8(X - 5)$$

$$11y - 99 = -8x + 40$$

$$8x + 11y - 99 - 40 = 0$$

$$8x + 11y - 139 = 0$$

16. Determine the x and y-intercepts of the function and then graph:

$$3x - 5y - 15 = 0$$

x-int: y = 0

$3x - 5(0) - 15 = 0$

$3x = 15$

$\dfrac{3x}{3} = \dfrac{15}{3}$

$x = 5$

$(5, 0)$

y-int: x = 0

$3(0) - 5y - 15 = 0$

$-5y = 15$

$\dfrac{-5y}{-5} = \dfrac{15}{-5}$

$y = -3$

$(0, -3)$