

Math 135 – Practice Test 4

Practice Test
Instructor: Patricia Wrean

Name: Solution Set

Allowed calculators: Sharp EL 531 and the TI BAIL.

Total: 25 points

Part I: For these short-answer questions, you do not need to show any work. Place your final answer in the space provided. Each answer is worth one point.

1. (4 points) Consider the line given by the equation $y = -\frac{2}{3}x + 6$.

(a) State the slope of the line.

$-\frac{2}{3}$

(b) State the y -intercept of the line.

6 or (0,6)

(c) Give the slope of a line parallel to this line.

$-\frac{2}{3}$

(d) Give the slope of a line perpendicular to this line.

$\frac{3}{2}$

$$m_2 = -\frac{1}{m_1} = -\frac{1}{(-\frac{2}{3})}$$

2. (2 points) If $f(x) = 3x^2$, find the following. Simplify your answer.

(a) $f(4) = 3(4)^2$
 $= 3 \cdot 16$
 $= 48$

48

(b) $f(-2) = 3(-2)^2$
 $= 3 \cdot 4$
 $= 12$

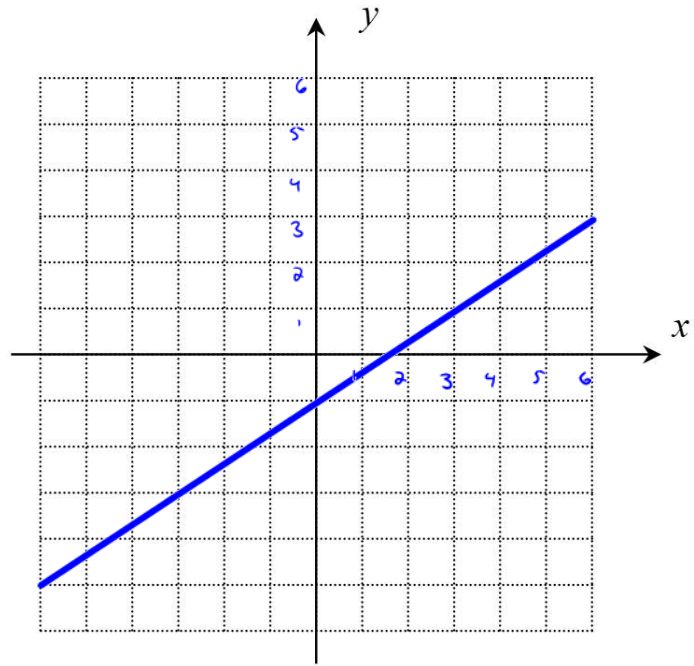
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Part II: For these questions, show your work and write your final answer in the space provided.

3. (6 points) Graph each line.

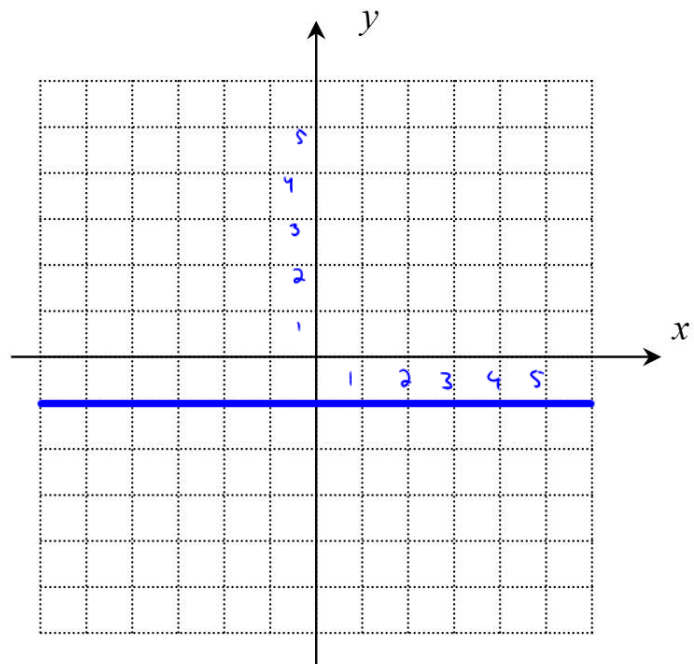
(a) $y = \frac{2}{3}x - 1$

- ② correct slope
① correct y-int



(b) $y = -1$

- ② correct slope
① correct y-int



4. (2 points) Is the point $(4, -3)$ a solution to the equation $4x + 3y = 0$? Explain briefly.

$$4x + 3y = 0$$

$$4(4) + 3(-3) = 0$$

$$16 - 9 = 0$$

$$7 = 0 \quad \times$$

No

5. (4 points) Find the equation of the line that goes through the points $(2, -4)$ and $(-1, 5)$.
Write your answer in slope-intercept form.

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$= \frac{5 - (-4)}{-1 - 2}$$

$$= \frac{9}{-3}$$

$$= -3$$

$$y = mx + b$$

$$y = -3x + b$$

sub in ①

$$-4 = -3(2) + b$$

$$-4 = -6 + b$$

$$2 = b$$

① ②

$$\underline{y = -3x + 2}$$

so $y = -3x + 2$

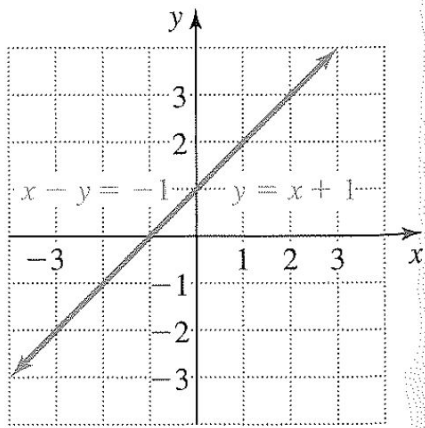
check: $y = -3x + 2$
sub in ② $5 = -3(-1) + 2$
 $5 = 3 + 2 \quad \checkmark$

6. (2 points) Consider the relation $\{(-1, 3), (0, 4), (-1, 5), (2, 6)\}$. Is this relation a function? Explain briefly.

No, because when $x = -1$, there are two different values of y .

7. (1 point) A system of equations has been graphed on the grid below. How many solutions does the system have?

number of solutions: infinite



← the two different equations give the same line

8. (4 points) Solve the following system of equations.

$$\begin{cases} y = \frac{1}{3}x + 4 \\ y = -2x - 3 \end{cases}$$

(-3, 3)

