MTH 06, Test 2, V. 4, 10/12/21 Prof. Luis Fernández

NAME:_____

There are 22 questions. Some are multiple choice and some are free response.
Each question is worth 5 points over 100 (so 10 points are extra credit).
For multiple-choice questions, just circle your answer.
For free-response questions, SHOW ALL WORK to receive credit.

1. What is the solution to the following system of equations?

$$\begin{cases} -2x + 4y &= -21 \\ -8x + 16y &= -72 \end{cases}$$

Circle the answer.

(a) $(7, -4)$

(b) Infinitely many solutions

(c) No solution

(d) $(3, 0)$

2. Given the function $f(x) = 3x^2 + 5x - 2$, calculate the following values:

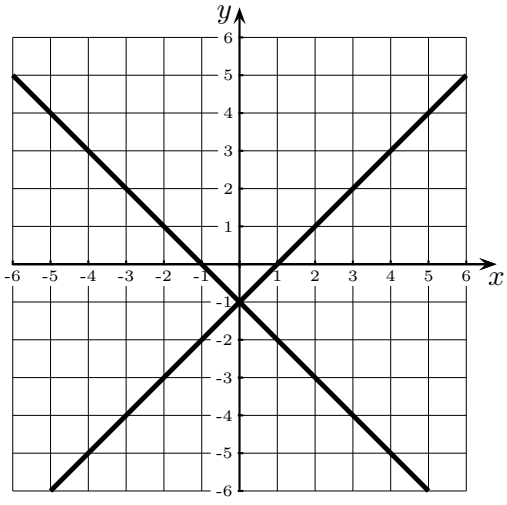
- $f(0) =$ _____
- $f(2) =$ _____
- $f(-2) =$ _____
- $f(x+1) =$ _____
- $f(-x) =$ _____

3. Find the x and y intercepts of the graph of the equation $y = x + 6$.

The x intercept is:_____

The y intercept is:_____

4. The graphs of two linear equations in a system is shown below.
Find the solution of the system of equations. If there is no solution or there are infinitely many solutions, write it.



5. Subtract: $(6x^2 + 4x - 4) - (-7x^2 - 4x - 5)$

6. Add: $(7x^3 - 4x^2 + 4x - 2) + (5x^3 - 7x^2 + x - 6)$

7. Subtract: $(3t^7 + 6t^5 - t^3 - 1) - (5t^7 - 3t^5 + 2t^3 + 3)$

8. Solve the following system of equations.

$$\begin{cases} -3x + 2y &= -10 \\ -5x + 3y &= -17 \end{cases}$$

9. Simplify the numerical expression

$$\left(\frac{10}{11}\right)^0.$$

10. For the polynomial $x^2 + x^5 - 3x - 5$,

a) Determine the coefficient and the degree of each term.

Term	Coefficient	Degree
x^2		
x^5		
$-3x$		
-5		

b)
The degree of the polynomial is ____,

The leading term is ____ ,

The leading coefficient is ____ .

11. Simplify the expression $\dfrac{30x^{14}y^{17}z^{17}}{6x^9y^{12}z^{14}}$

12. Simplify the expression $(3x^6y^3)(7x^{15}y^{11})$

13. Write in scientific notation.

0.0039

14. Write in decimal notation

$5.4 \times 10^{-4} =$ _____

15. Multiply: $(6x - 6)(x^2 + 2x + 3)$

Circle the answer

(a) $6x^3 + 18x^2 + 6x - 18$

(b) $6x^3 + 6x^2 + 18x - 18$

(c) $6x^3 + 18x^2 + 18x - 18$

(d) $6x^3 + 6x^2 + 6x - 18$

16. Write in scientific notation:

63400000

17. Square the binomial: $(x-5)^2$.

18. Simplify the expression $\left(\dfrac{10x^4y^3}{5x^6y^{-3}}\right)^4$

19. Multiply the polynomials: $(x-1)(x+3)$

20. Divide and write in scientific notation:

$$\frac{1.2\times 10^3}{4.8\times 10^7}$$

Circle the answer

(a) 4×10^{10}

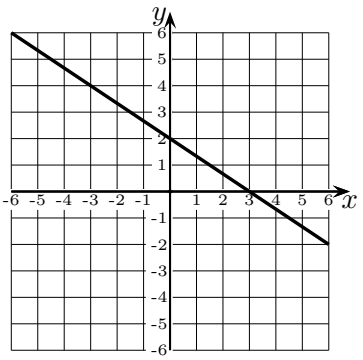
(b) 4×10^{-5}

(c) 0.25×10^{-4}

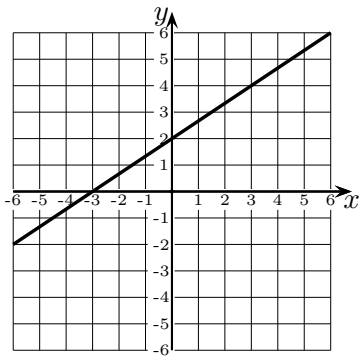
(d) 2.5×10^{-5}

21. Which of the following is the graph of the equation $2x - 3y = -6$? (Circle the answer).

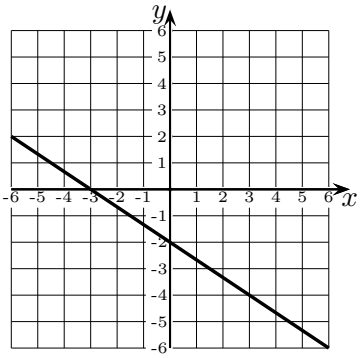
(a)



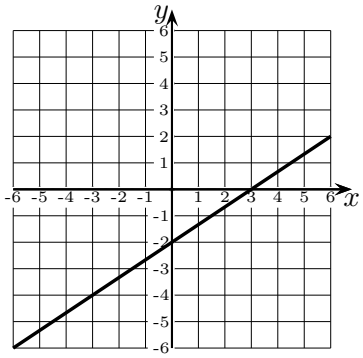
(c)



(b)

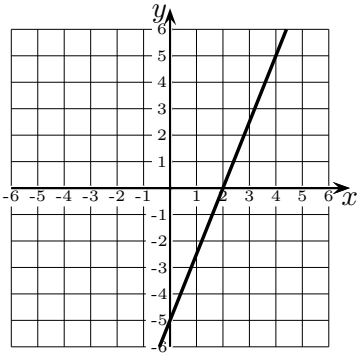


(d)

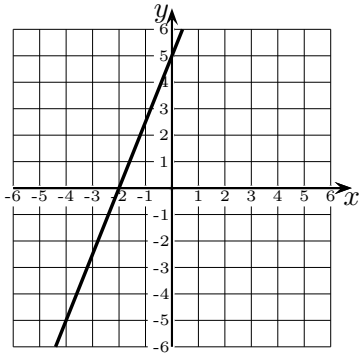


22. Which of the following is the graph of the equation $10x - 4y = 20$? (Circle the answer).

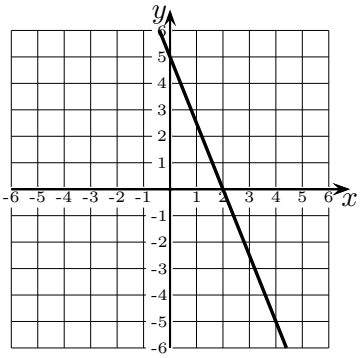
(a)



(c)



(b)



(d)