

# MTH 06, Test 1, V. 1, 03/01/22

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NAME: \_\_\_\_\_

There are 30 questions. Some are multiple choice and some are free response.

Each question is worth 4 points, totalling 120 points.

Any points over 100 and up to 110 will count as extra credit.

For multiple-choice questions, just circle your answer.

For free-response questions, **SHOW ALL WORK** to receive credit.

1. Evaluate the expression:

$$9 + 3 \cdot 7 - (8 + 3 \cdot 6) =$$

2. Solve:  $3(7x + 1) = 4(5x + 1) + 14$ .

**Circle the answer.**

(a)  $-13$

(b)  $\frac{9}{20}$

(c)  $\frac{21}{41}$

(d)  $15$

3. Simplify:  $\frac{4}{5} \cdot \frac{7}{16} =$

4. Simplify:  $\frac{1}{8} + \frac{1}{12} - \frac{1}{16} =$

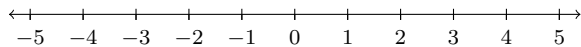
5. Use the formula  $F = \frac{9}{5}C + 32$  for converting degrees Celsius into degrees Fahrenheit to find the Fahrenheit measure of the Celsius temperature  $C = 25$ . **Circle the answer.**

- (a) 37
- (b) 77
- (c) 257
- (d) 51.4

6. Solve the equation  $8x - 7 = 2x - 3$ .

7. Solve the inequality and express the answer on the number line provided

$$6x - 14 + 2(x - 5) < 0.$$



8. **Circle** the graph of the solution to the inequality:

$$-1 - (-2 + x) \leq 3x + 21$$

- (a) 

A number line from -6 to 6 with tick marks at every integer. A solid black dot is placed at -5. A thick black ray extends from this dot to the left, ending in an arrowhead.
- (b) 

A number line from -6 to 6 with tick marks at every integer. A solid black dot is placed at -5. A thick black ray extends from this dot to the right, ending in an arrowhead.
- (c) 

A number line from -6 to 6 with tick marks at every integer. A solid black dot is placed at 5. A thick black ray extends from this dot to the right, ending in an arrowhead.
- (d) 

A number line from -6 to 6 with tick marks at every integer. A solid black dot is placed at 5. A thick black ray extends from this dot to the left, ending in an arrowhead.

9. Solve for  $x$ .

$$\frac{10}{3}x + \frac{1}{6} = \frac{7}{3}x + \frac{37}{6}$$

10. Solve for  $y$  and circle the answer:

$$z = 4x + 9y.$$

(a)  $y = \frac{z + 4x}{9}$

(b)  $y = \frac{z}{9} - 4x$

(c)  $y = 9(z - 4x)$

(d)  $y = \frac{z - 4x}{9}$

11. Find

$$38 - (-30) + (-15) - 63.$$

12. Divide or state that the division is undefined:

(Note: Your answer must be a fraction.)

$$-\frac{3}{2} \div \left(-\frac{9}{4}\right) =$$

$$15 \div \left(-\frac{3}{2}\right) =$$

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

The  $x$  intercept is: \_\_\_\_\_

The  $y$  intercept is: \_\_\_\_\_

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

•  $f(0) =$  \_\_\_\_\_

•  $f(2) =$  \_\_\_\_\_

•  $f(-2) =$  \_\_\_\_\_

•  $f(x + 1) =$  \_\_\_\_\_

•  $f(-x) =$  \_\_\_\_\_

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

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

17. 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 \_\_\_\_\_ .

18. Simplify the numerical expression

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

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

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

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

22. Write in decimal notation

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

23. Write in scientific notation:

63400000

24. Write in scientific notation.

0.0039

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

**Circle the answer**

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

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

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

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

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

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

**28.** Divide and write in scientific notation:

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

**Circle the answer**

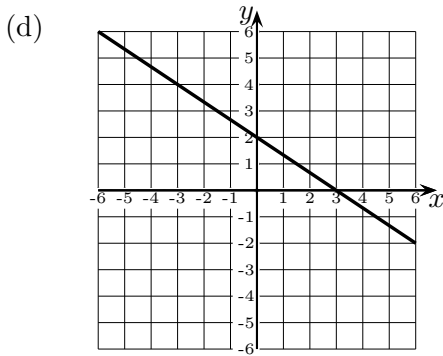
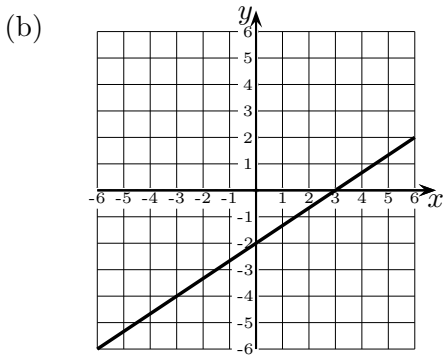
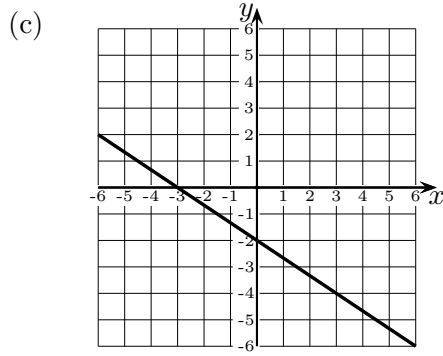
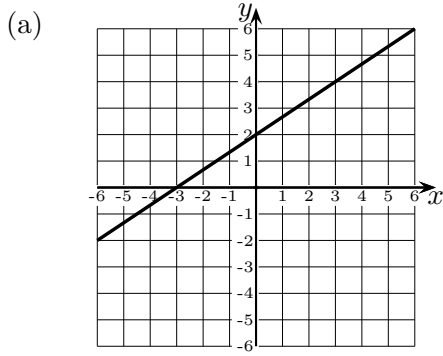
(a)  $0.25 \times 10^{-4}$

(b)  $2.5 \times 10^{-5}$

(c)  $4 \times 10^{-5}$

(d)  $4 \times 10^{10}$

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



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

