

Diagnostic Instrument Math 098

Department of Mathematics

**BEFORE YOU BEGIN, ENTER THE INSTRUCTOR'S AND YOUR NAME
(LAST, FIRST)**

Instructor: _____

Your Name: _____

1. Simplify: $6x - 5y + 2x + 5y =$

$8x + y$

$8x^2$

$8x$

$8x + 10y$

2. Simplify: $5(3x + 2y) - 3(2x - y) =$

$9x^2 + 13y^2$

$9x + y$

$9x + 11y$

$9x + 13y$

3. Solve: $3(x - 2) + 7x = 2x + 18$. Then,

$x = -6$

$x = 6$

$x = \frac{7}{4}$

$x = 3$

4. Solve the inequality $4x - 7 \leq 6x + 9$. Then,

$x \geq -1$

$x \geq -8$

$x \leq \frac{1}{5}$

$x \leq -8$

5. Solve the equation $2x + 3y = 6$ for y :

$$y = 2$$

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

$$y = 6 - 2x$$

$$y = \frac{2x+6}{3}$$

6. If $a = 2$, $b = -3$, evaluate $a^2 - 2ab =$

$$3$$

$$16$$

$$11$$

$$-8$$

7. Subtract: $(5x^2 + 3x + 1) - (7x^2 - 4x - 4) =$

$$-2x^2 + 7x + 5$$

$$2x^2 + 7x + 5$$

$$5x^2 + 5$$

$$-2x^2 - x - 3$$

8. $3(2x)^2 =$

$$36x^2$$

$$12x$$

$$6x^2$$

$$12x^2$$

9. $(7a^5b^3)^2 =$

$49a^{10}b^9$

$14a^{25}b^9$

$49a^{10}b^6$

$14a^{10}b^6$

10. $\frac{12a^8b^3}{4a^2b^3} =$

$3a^4b$

$8a^6$

$3a^6$

$3a^4$

11. $(3x^6y^2)(-5x^2y^3)=$

$$-15x^{12}y^6$$

$$-15x^8y^5$$

$$-15x^8y^6$$

$$\frac{1}{15}x^8y^5$$

12. $(x^{-2}y^3)^{-5} =$

$$\frac{x^3}{y^2}$$

$$\frac{x^{10}}{y^{15}}$$

$$\frac{-5y^3}{x^2}$$

$$\frac{y^{15}}{x^{10}}$$

13. Multiply the binomials: $(4a - 3b)(2a + 5b) =$

$$8a^2 - 15b^2$$

$$8a + 14ab - 15b$$

$$8a - 15b$$

$$8a^2 + 14ab - 15b^2$$

14. Expand: $(3x - 5)^2 =$

$$3x^2 - 25$$

$$9x^2 + 25$$

$$9x^2 - 30x + 25$$

$$9x^2 - 15x + 25$$

15. Factor: $8px + 4p =$

$$4p(2x)$$

$$12p^2x$$

$$8p(x + 1)$$

$$4p(2x + 1)$$

16. Factor: $20a^8b^3 + 15a^6b^6 + 5a^2b^3 =$

$$5a^2b^3(4a^6b + 3a^4b^3)$$

$$5a^2b^3(4a^4b + 3a^3b^2 + 1)$$

$$5a^2b^3(4a^6 + 3a^4b^3 + 1)$$

$$5a^2b^3(4a^4b + 3a^3b^2)$$

17. Factor: $x^2 - 16 =$

$$(x - 4)(x + 8)$$

$$(x - 4)^2$$

$$(x - 4)(x + 4)$$

$$2(x - 8)$$

18. Factor: $x^2 - 3x - 18 =$

$$(x - 6)(x + 3)$$

$$2(x - 9)$$

$$(x - 9)(x + 2)$$

$$(x - 9)^2$$

19. Factor: $(2x + 4y)(7x - 3y) - (2x + 4y)(2x - y)$

$$(2x + 4y)(7x - 3y)(2x - y) \quad (2x + 4y)^2(5x - 4y)$$

$$(2x + 4y)(5x - 2y) \quad (5x - 4y)$$

20. Factor: $x^3 + 4x^2 + 9x + 36 =$

$$x^2(x + 4)9(x + 4) \quad x(x^2 + 4x + 9) + 36$$

$$(x + 4)(x^2 + 9) \quad 2(x + 4)(x^2 + 9)$$

21. Which of the following is a factor of $5x^2 + 7x - 6$?

$(5x - 3)$

$(5x - 2)$

$(5x - 6)$

$(5x + 6)$

22. Which of the following ordered pairs is a solution of the equation $5x - 7y = 3$?

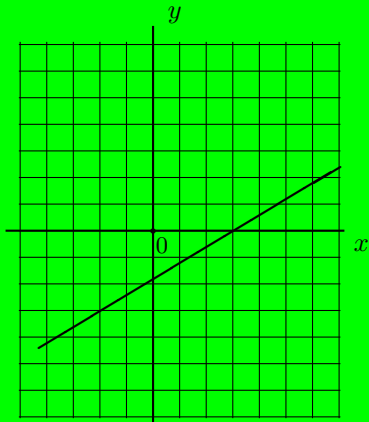
$(1, 2)$

$(-2, 1)$

$(2, 1)$

$(1, -2)$

23. Which of the following is a point of the line graphed below?



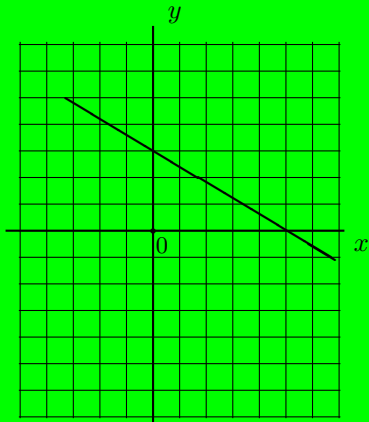
$(0, 3)$

$(-2, -3)$

$(-3, -2)$

$(-2, 3)$

24. Which of the following is the y -intercept of the line graphed below?



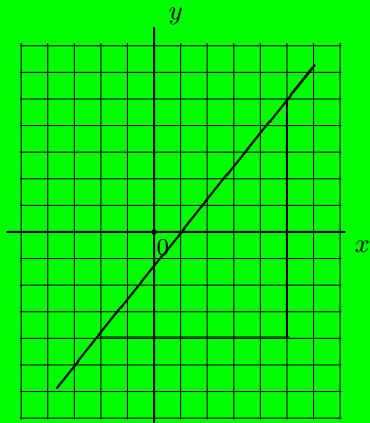
(0, 3)

(5, 0)

(3, 0)

(0, 5)

25. Which of the following is the slope of the line graphed below?



$9/7$

$7/9$

$-9/7$

$-7/9$

26. The slope of the line through the points $(13, 6)$ and $(-2, 9)$ is

$$-5$$

$$5$$

$$-\frac{1}{5}$$

$$-\frac{11}{3}$$

27. The y intercept of the line $2x + 5y = 20$ is

$$(0, 4)$$

$$y = (20 - 2x)/5$$

$$(10, 0)$$

$$-\frac{2}{5}$$

28. The slope of the line $2x + 7y = 21$ is

2

3

 $-\frac{2}{7}$ $\frac{2}{7}$

29. Add: $\frac{2}{3} + \frac{3}{5} =$

 $\frac{2}{5}$ $\frac{5}{8}$ $\frac{19}{15}$ $\frac{5}{15}$

30. Add: $\frac{3}{7} + \frac{2}{7} =$

$$\frac{5}{7}$$

$$\frac{5}{49}$$

$$\frac{6}{14}$$

5

31. Add: $\frac{x + 3y}{2x + 5y} + \frac{3x + 7y}{2x + 5y} =$

1

$$\frac{3x^2 + 10y^2}{2x + 5y}$$

$$4x + 10y$$

2

32. Simplify: $-(2x - 5y) =$

$$\frac{1}{2x - 5y} \quad -2x - 5y \quad -2x + 5y \quad \frac{1}{2x} + 5y$$

33. Subtract: $\frac{5x + 2y}{7} - \frac{2x - 5y}{7} =$

$$3x - 3y \quad \frac{3x + 7y}{7} \quad 3x + y \quad \frac{3x - 3y}{7}$$

Now please do the survey in the next page to tell us how you feel about math, fraction, and negative numbers. After you are done, kindly press the send button (it will e-mail the outcomes to the math department).

Please check all the statements below that you agree with.

I love math!

I may or may not like math, but I know how useful it is.

I want to learn math.

Math is not used in my major.

Competency in math empowers me.

I do not like to work with negative numbers.

Next Page

To work with negative numbers, I routinely convert them to positives.

Negative numbers and fractions are the same, for example $-2 = 1/2$.

Answers cannot be left with negative exponents.

I do not see the need for negative numbers.

Negative numbers do not represent reality.

The number (-6) is a very negative 6.

Send