MATH 112 Practice Exit Exam Name:

Choose the letter (a, b, c, or d) of the answer you believe is correct and place it in the space provided. Use the scratch paper provided to do your work. You should hand in all papers, including scratch paper you used. You may use your calculator. (Note the actual exit exam will not list the objective for each question, and the order presented on this exam will be randomized.)

_____1.) What is the result of applying the distributitve property to the expression $-2(3x+1)$?

a.) $-8x$
b.) $-6x+2$
c.) $-6x-2$
d.) $-6x+1$

(Objective 1: Manipulate and evaluate mathematical expressions, using algebriac notation and terminology)

_____2.) Calculate 10^{-10} on your graphing calculator. How do we interpret the result $1_E - 10$?

a.) 10,000,000,000
b.) 0.0000000001
c.) 10
d.) 0.1

(Objective 2: Write and interpret numbers in scientific notation, both written by hand and on a graphing calculator, using integer expontents)

_____3.) What is the value of $241,000,000,000$ written in scientific notation?

a.) 24.1×10^{10}
b.) 2.41×10^{11}
c.) 24.1×10^{-10}
d.) 2.41×10^{-11}

(Objective 2: Write and interpret numbers in scientific notation, both written by hand and on a graphing calculator, using integer expontents)

_____4.) What is the solution of $4x + 5 = 2(1 - x)$?

a.) $x = -\frac{1}{2}$
b.) $x = 1$
c.) $x = -1$
d.) $x = \frac{1}{2}$

(Objective 3: Determine and solve linear equations and inequalities in one variable)

_____5.) What is the solution of $12 \leq 4 - 2x$?

a.) $x \leq 4$
b.) $x \leq -4$
c.) $x \geq 4$
d.) $x \geq -4$

(Objective 3: Determine and solve linear equations and inequalities in one variable)

_____6.) If solved for the variable y, what is the solution of $4x + 5y = -20$?

a.) $y = -20 - \frac{4}{5}x$
b.) $y = -4 - 4x$
c.) $y = -4 + \frac{4}{5}x$
d.) $y = -4 - \frac{4}{5}x$

(Objective 4: Solve Literal Equations)

_____7.) The perimeter of a triangle with side measurements a, b, and c is given by $P = a + b + c$. If we know the perimeter of a triangle is $156\,cm$, the length of side $a = 62.5\,cm$ and the length of side $c = 32.5\,cm$, then what is the length of side b.

a.) $b = 30\,cm$
b.) $b = 95\,cm$
c.) $b = 61\,cm$
d.) $b = 52\,cm$

(Objective 4: Solve Literal Equations)

_____8.) A family must save more than \$1500 to take a family vacation next summer. If the family plans to pay for the vacation using their \$625 tax return plus \$40 a week saved from their pay checks, which of the following interpretations for the number of paychecks a family must earn is most appropriate?

a.) exactly 21 paychecks
b.) less than 21 paychecks
c.) no more than 21 paychecks
d.) at least 22 paychecks

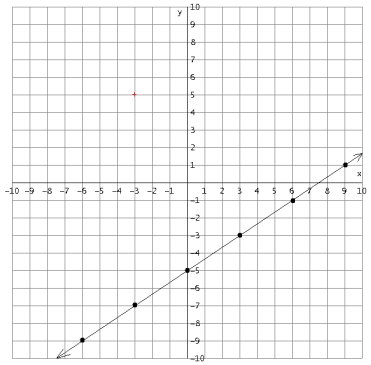
(Objective 5: Solve applied problems involving linear equations and inequalities in one variable)

_____9.) Which (x, y) coordinate is on the graph of the linear equation $3x - 5y = -15$?

a.) $(1,5)$
b.) $(6, 5)$
c.) $(0, 3)$
d.) $(0, -5)$

(Objective 6: Determine and solve linear equations in two variables)

_____10.) The following is the graph of a linear equation



What is the equation for the line given in the graph above?

a.) $y = \frac{2}{3}x + 5$
b.) $y = \frac{2}{3}x - 5$
c.) $y = \frac{3}{2}x - 5$
d.) $y = -\frac{3}{2}x + 5$

(Objective 6: Determine and solve linear equations in two variables)

_____11.) A linear equation has a slope of -$\frac{3}{2}$ and passes through the point (4,1) on its graph. What is the equation for this line?

a.) $y = 1 - \frac{3}{2}x$
b.) $y = 1 + \frac{3}{2}x$
c.) $y = 4 - \frac{3}{2}x$
d.) $y = 7 - \frac{3}{2}x$

(Objective 6: Determine and solve linear equations in two variables)

_____12.) A linear equation is given by $y = 1 - \frac{1}{2}x$. What is an appropriate interpretation of this equation's slope?

a.) For an increase in x by 1 unit, y increases by 2 units.
b.) For an increase in x by 1 unit, y decreases by 2 units.
c.) For an increase in y by 1 unit, x decreases by $\frac{1}{2}$ a unit.
d.) For an increase in x by 1 unit, y decreases by $\frac{1}{2}$ a unit.

(Objective 8: Determine and interpret slope of linear equations)

_____13.) A straight line passes through the points $(5, -3)$ and $(6, -1)$ on its graph. What is the slope of the line?

a.) $m = \frac{1}{2}$
b.) $m = -2$
c.) $m = 2$
d.) $m = -\frac{1}{2}$

(Objective 8: Determine and interpret slope of linear equations)

_____14.) Letting $l =$ the length of a rectangle, and $w =$ width of the rectangle, the perimeter of a rectangle is given by $p = 2l + 2w$. Assuming we have a rectangle whose length is 9 inches more than its width, and the total perimeter is 45 inches, what is the length of the rectangle?

a.) $l = 18$ inches
b.) $l = 9$ inches
c.) $l = 6.75$ inches
d.) $l = 15.75$inches

(Objective 7: Solve applied problems involving linear equations in two variables, including linear functions)

_____15.) Given the following system of linear equations,

$$\begin{pmatrix} 3x - 2y = -12 \\ x + 2y = 4 \end{pmatrix}.$$

What is the solution to the system?

a.) $(-9, 0)$
b.) $(1, -1)$
c.) $(2, -3)$
d.) $(-2, 3)$

(Objective 9: Solve a system of two linear equations in two variables using graphical methods and algebraic methods)

_____16.) Consider two Internet MP3 download companies. Company A charges a monthly service fee of $5 per month plus a charge of 75 cents per download. Company B charges a monthly service fee of $10 per month plus a charge of 60 cents per download. At what cost does company A's monthly charges equal company B's monthly charges?

a.) $50
b.) $30
c.) $35
d.) $40

(Objective 10: Solve applied problems involving systems of linear equations)

_____17.) An algebraic expression is given by $(2x^2 + 2y + y^2) - 3(x^2 + y^2)$. What is this expression in simplest form?

a.) $2y + 2y^2 - x^2$
b.) $2y - 2y^2 - x^2$
c.) $2x^2 + 2y^2$
d.) $x^2 - y^2 + 2y$

(Objective 11: Perform all operations with polynomials and polynomial functions)

_____18.) An algebraic expression is given by $(4x - 2y)(6x - y)$. What is the expression in simplest form?

a.) $24x + 2y$
b.) $24x^2 + 2y^2$
c.) $24x - 16xy + 2y$
d.) $24x^2 - 16xy + 2y^2$

(Objective 11: Perform all operations with polynomials and polynomial functions)

_____19.) An algebraic expression is given by $(5x^4)(3x)^2$. What is this expression in simplest form?

a.) $15x^8$
b.) $45x^8$
c.) $15x^6$
d.) $45x^6$

(Objective 12: Simplify exponential expressions using the rules of exponents)

_____20.) An algebraic expression is given by $\frac{36m^3n^6}{12m^5}$. What is this expression in simplest form?

a.) $3m^2n^6$
b.) $\frac{3n^6}{m^2}$
c.) $\frac{m^2}{3n^6}$
d.) $\frac{n^6}{3m^2}$

(Objective 12: Simplify exponential expressions using the rules of exponents)
