Mathematics 52
Study Guide 2
Fall 2016
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Course ID: (27488) and (27501)

Student's Name:………………………..….

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Note: This study guide contains practice questions that are very useful for your preparation for the second exam in **_Elementary Algebra_**.

Problem 1: Determine whether the following is **TRUE** or **FALSE** and if it is false **EXPLAIN** why:

a. Linear inequality is a mathematical expression that has an equal sign only.

b. Suppose that a solution for a linear inequality is $-2 < \psi \le 1$, then this solution in the interval notation can be written as $\{\psi | -2 < \psi \le 1\}$.

c. Given that l_1 and l_2 are non-vertical lines. If $l_1 \parallel l_2$, then $m_1 \cdot m_2 = -1$.

d. Given that l_1 and l_2 are non-vertical lines. If l_1 and l_2 make an angle of $90°$, then $m_1 = m_2$.

e. It is possible to derive the slope-point form of equation of line using the slope formula by considering the slope passes through (x_1, y_1) and (x, y).

f. $(apple + tomato)^2 = (apple)^2 + 2(tomato)(tomato) + (tomato)^2$

g. $(2\,pumpkins - 3\,sweet\,potatos)^2 = (4\,pumpkins)^2 - 24(pumpkins)(sweet\,potatos) + 9(sweet\,potatos)^2$

h. $(2x + 4)^2 = 4(x + 2)^2$

i. $(z^2 - 25)^{-2} = \dfrac{1}{\left((z-5)(z+5)\right)^2}$

j. $\dfrac{1^{1,000,000,000}}{0^0} = 1$

Problem 2: Answer each of the following:

a. $\dfrac{1}{2^{-3}} = $ – – – – – – – – – –

b. $\dfrac{2^0-1}{2^{2-2}} = $ – – – – – – – – –

c. $(-5^0) \cdot (1) = $ – – – – – – – – –

d. $x^3 y^{-1} z^2 m^2 y m^{-2} x^{-2} = $ – – – – – – – – – –

e. $\dfrac{\Psi^{-5}\Lambda^{-1}\Sigma^2}{\Lambda^1\Sigma^1\Pi^{-1}} = $ – – – – – – – – – – – – – – – – –

f. $0^{-3} = $ – – – – – – – – – – – – – – – – – – –

g. What is the name of zero slope? ----------------------------

h. What is the name of undefined slope? -----------------------------

i. $5 \times 5 \times \ldots \times 5 = $ – – – – – – – – – – – – – – – –

j. $6^{-1} = $ –

Problem 3: Add the following:

$$a. + \begin{array}{l} (2x^7+4x^2-2x^0+2x^3+5x^6) \\ (2x^0-12x^2+5x^8+4x^3+10x^2) \end{array}$$

Problem 4: Subtract the following:

$$-\frac{(-2x^5 + 3x^2 - 2x^0 + 1x^5 + 5x^6)}{(12x^0 - 12x^2 + 0x^7 + 3x^2 + 8x^4)}$$

Problem 5: Multiply the following:

$$X \quad \begin{aligned} (2x^2 + 2x^1 - 12x^0) \\ (x^2 + x + 1) \end{aligned}$$

Problem 6: Divide the following using <u>both long division and synthetic division methods</u>:

$$\frac{x^3 - 1}{x - 1}$$

Problem 7: Solve each of the following:

a. $3z + 5 < -2 + 12z$

b. $-10\zeta + 12 \leq -2 - 2\zeta$

c. $-12\delta^0 + 11\sqrt[3]{\sqrt{8}} < \left(-\frac{-31200.43}{-340123.2}\right)^{0+1-1} + 10\delta + \frac{2}{2^{-1}}\delta$

d. $|5z + 2| = -4$

e. $|5\varepsilon^{0-1+2} + 2\varepsilon^0 - 1| \geq -4^0 + \frac{1}{2^{-2}}$

f. $(|5y + 12| + |5y - 5^2 + 15y^0|) \leq -4$

g. $\frac{|25\tau+5|}{-2|25\tau+5|} = -4$

Problem 8: Find the slope of the line that passes through each pair of points:

Part a: $(-6,5)$ and $(6,2)$

Part b: $(-1,-5)$ and $(0,0)$

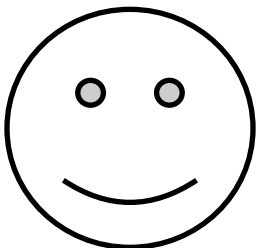**Problem 9:** Find the equation of the line with given properties:

    a. A line passes through $(0,-2)$ and is perpendicular to the line:

$6x^0 + 12x^1 - 13y^0 + 5y^1 = -12$.

    b. A line passes through $(1, -2)$ and has a horizontal slope.

Problem 10: Graph the following:

$$\frac{5y^2 + 25y}{(y + 5)} = 2x - 12$$

We always learn from the challenging
math problems.

Practice + Study = Success

Good Luck in Exam 2

Mohammed Kaabar