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2:45

Quiz #1
Name: Key

Math 1060

September 4, 2013

Section: _____

You have 10 minutes to complete the quiz.

1. True or false (1 point each - no work required):

(a) $(1+x)^2 = 1+x^2$ Answer: False

(b) $\sqrt{1+x} = 1 + \sqrt{x}$ Answer: False

(c) $(1+x)^2 = 1 + 2x + x^2$ Answer: True

(d) $(1 + \sqrt{x})^2 = 1 + x$ Answer: False

(e) $\frac{x-1}{x+1} = \frac{x}{x+1} - \frac{1}{x+1}$ Answer: True

(f) $\frac{x-1}{x+1} = \frac{x-1}{x} + \frac{x-1}{1}$ Answer: False

For the remaining problems, please show all work, and write your answer on the line provided.

2. Simplify the following expression:

$$\left(\frac{x-1}{x-1}\right) \frac{1}{x} + \frac{1}{(x-1)} \left(\frac{x}{x}\right)$$

$$= \frac{x-1}{x(x-1)} + \frac{x}{x(x-1)}$$

$$= \frac{(x-1) + (x)}{x(x-1)}$$

Answer: $\frac{2x-1}{x(x-1)} = \frac{2x}{x(x-1)} - \frac{1}{x(x-1)}$

$$= \frac{2}{(x-1)} - \frac{1}{x(x-1)}$$

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3. Simplify the following expression:

$$\frac{(3x)^2(2x)^{-1}}{(3x+1)} = \frac{3^2 x^2}{(3x+1)} \cdot \frac{1}{2x}$$

$$= \frac{3^2 x}{2(3x+1)}$$

Answer: $\frac{9x}{2(3x+1)} = \frac{9x}{6x+2}$

4. Solve the following equation for x :

$$(x^2+1) \frac{(x+1)^2}{(x^2+1)} = 1 \cdot (x^2+1)$$

$$(x+1)^2 = x^2+1$$

$$x^2+2x+1 = x^2+1$$

$$2x+1 = 1$$

$$2x = 0$$

$$x = 0$$

Answer: $x = 0$ 5. Solve the following equation for x :

$$x^2 + 3x = -2$$

$$x^2 + 3x + 2 = 0$$

$$(x+2)(x+1) = 0$$

$$x+2 = 0 \quad \textcircled{a} \quad x+1 = 0$$

$$x = -2 \quad \textcircled{b} \quad x = -1$$

Answer: $x = -2 \quad \textcircled{a} \quad x = -1$