MATH 119: Quiz 2

Name: _key_

Directions:

* No calculators.
* Show your thought process (commonly said as "show your work") when solving each problem for full credit.
* Good luck!

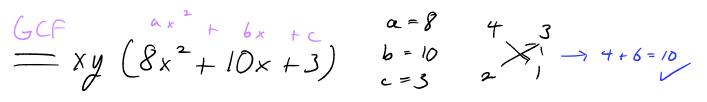1. Simplify

$$(x^4 - x^2 + x - 1) - (3x^2 - 4x^4 + x - 2)$$

factor

terms, dist law

$$-1 \cdot (3x^2 - 4x^4 + x - 2)$$

$$= x^4 - x^2 + x - 1 - 3x^2 + 4x^4 - x + 2$$

$$= \boxed{5x^4 - 4x^2 + 1}$$

no need to factor, directions didn't specify to factor.

2. Factor

$$8x^3y + 10x^2y + 3xy$$

GCF

$ax^2 + bx + c$

$$= xy(8x^2 + 10x + 3)$$

$a = 8$
$b = 10$
$c = 3$

$4 \quad 3$
$2 \quad 1$ → $4 + 6 = 10$ ✓

"new" X

$$= xy(4x + 3)(2x + 1)$$

3. Suppose $f(x) = x^2 - x$. Find the following and fully simplify (combine like terms, etc.):

(a) $f(1) = 1^2 - 1 = \boxed{0}$

(b) $f(x + h) = (x + h)^2 - (x + h)$

$$= \boxed{x^2 + 2xh + h^2 - x - h}$$

4. Find all real valued solutions to the equation

$$8x^2 - 14x - 15 = 0$$
$$ax^2 + bx + c$$

$a = 8$

$b = -14$

$c = -15$

$4 \cancel{\times}_3^2 \overset{-5}{}$ $6 - 20 = -14 \checkmark$

$$(2x - 5) \cdot (4x + 3) = 0$$
$$\downarrow$$

$2x - 5 = 0 \quad \bullet\checkmark \quad 4x + 3 = 0$

$2x = 5 \qquad\quad \bullet\checkmark \quad 4x = -3$

$$\boxed{x = \frac{5}{2} \quad \bullet\checkmark \quad x = -\frac{3}{4}}$$

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