MATH 118: 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 with exponent laws (get rid of all negative exponents as well):

$$\left(\frac{(x+1)}{3(x+1)^{-1}y}\right)^{-2}$$

treat as factor

$$= \left(\frac{3(x+1)^{-1}y}{(x+1)}\right)^{2} \quad (6)$$

$$= \left(\frac{3y}{(x+1)^{2}}\right)^{2} \quad (7)$$

$$= \frac{3^{2}y^{2}}{((x+1)^{2})^{2}} \quad (5)$$

$$= \boxed{\frac{9y^{2}}{(x+1)^{4}}} \quad (3)$$

2. Perform the operation and simplify:

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

factor

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

terms, dist law

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

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

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

(b) $\dfrac{xy-3y}{x^2+9}\cdot\dfrac{(x+3)^2}{x^2y-9y}$

GCF $\dfrac{y(x-3)}{x^2+9}\cdot\dfrac{(x+3)^2}{y(x^2-9)}$ A^2-B^2 $\dfrac{y(x-3)}{x^2+9}\cdot\dfrac{(x+3)^2}{y(x-3)(x+3)}$

frac law #1 $\dfrac{y(x-3)(x+3)^{(x+3)}}{y(x^2+9)(x-3)(x+3)}$ frac law #5 $\boxed{\dfrac{x+3}{x^2+9}}$

3. Factor: $8x^2+10x+3$

ax^2+bx+c

$a=8$

$b=10$

$c=3$

4 3 2 1 → $4+6=10$ ✓

$\boxed{(4x+3)(2x+1)}$