

October 12, 2015

\* Fractions Due Wednesday

\* Quiz # 5 - Wednesday

① 5.5 → "More"

② Fractions

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5.5

#14)

$$4^{6m+5} \cdot 4^{m-5}$$

same base → add exponents

$$(6m+5) + (m-5)$$

$$6m+5+m-5$$

$$7m$$

$$4^{7m}$$

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#26)

$$\frac{2x^3 y^{-4} z^{-3}}{3x^2 y^{-3} z^4} = \frac{2x^2 y^{-4-(-3)} z^{-3-4}}{3y^1 z^4 z^3}$$

$$= \frac{2x^2}{3y z^7}$$

Division Rule

$$\frac{a^m}{a^n} = a^{m-n}$$

Negative Exponent Rule

$$\frac{3x^7}{y z}$$

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#30)

$$\frac{3x^3 y^{-1} z^{-1}}{x^{-4} y^0 z^0} = \frac{3x^3 \cdot x^4}{1 \cdot y \cdot z}$$

zero exponent rule

$$= \frac{3x^7}{y z}$$

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$$\frac{3 \cdot x^3 \cdot y^{-1} \cdot z^{-1}}{1 \cdot x^{-4} \cdot y^0 \cdot z^0}$$

$$\frac{3}{1} \cdot \frac{x^3}{x^{-4}} \cdot \frac{y^{-1}}{y^0} \cdot \frac{z^{-1}}{z^0}$$

$$3 \cdot x^{3-(-4)} \cdot y^{-1-0} \cdot z^{-1-0}$$

$$3 \cdot x^{3+4} \cdot y^{-1} \cdot z^{-1}$$

$$\frac{3 \cdot x^7}{y z}$$

Division Rule

$$\frac{a^m}{a^n} = a^{m-n}$$

Negative Exponent Rule

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#21) More

$$\frac{(2pm^{-1}q^0)^4 \cdot 2^{m-1} p^{2 \cdot 2}}{1 \cdot p^2}$$

$$\frac{(2^4 p^4 m^{-4} q^0) \cdot 2^{m-1} p^4}{p^2}$$

$$\frac{2^5 p^4 m^{-4} q^0 \cdot m \cdot q^2}{p^2}$$

$$\frac{2^5 p^4 (m^{-4})^1 (q^0)^1 \cdot m \cdot q^2}{p^2}$$

$$\frac{16 p^4 m^{-3} q^2}{p^2}$$

$$\frac{16 p^4 m^{-3} q^2}{16 p^2 m^3 q^2} = \frac{m^3}{16 p^2 q^2}$$

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5.6 Polynomial Multiplication

$$(-5x^3)(6x^4)$$

$$(-1) \cdot (-5) \cdot (x) \cdot (x) \cdot (x) \cdot (6) \cdot (x) \cdot (x) \cdot (x) \cdot (x)$$

$$-30x^7$$

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$$(3y)(4xy^3)$$

$$12xy^4$$

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$$-7z(z^8 - 2)$$

$$-7z^9 + 14z$$

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$$5x(-8x^4 + 2x^3 - 3x + 9)$$

$$-40x^5 + 10x^4 - 15x^2 + 45x + 1x^0$$

$0x^3$

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$$(x+3)(x-5)$$

- ①  $x \cdot x = x^2$
- ②  $x \cdot (-5) = -5x$
- ③  $3 \cdot (x) = 3x$
- ④  $3 \cdot (-5) = -15$

*Collect Like Terms*

$$x^2 - 2x - 15$$

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$$(x-6)(3x^2 - 8x + 9)$$

$$3x^3 - 8x^2 + 9x - 18x^2 + 48x - 54$$

$$3x^3 - 26x^2 + 57x - 54$$

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$$\begin{aligned}
 &(-2x^2 - 4x + 8)(6x^2 + 5x - 11) \\
 &\cancel{-12x^4} - \cancel{10x^3} + \cancel{22x^2} - \cancel{24x^3} - \cancel{20x^2} + \cancel{44x} \\
 &\quad + \cancel{48x^2} + \cancel{40x} - \cancel{88} \\
 &\hline
 &-12x^4 - 34x^3 + 50x^2 + 84x - 88
 \end{aligned}$$

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$$\begin{aligned}
 (a + b)^2 &= (a+b)(a+b) \\
 &= a^2 + ab + ab + b^2 \\
 &= a^2 + 2ab + b^2 \\
 (3x - 5)^2 &= (3x-5)(3x-5) \\
 &= 9x^2 - 15x - 15x + 25 \\
 &= 9x^2 - 30x + 25 \\
 (5x - 7)^4 &= [(5x-7)(5x-7)](5x-7)(5x-7)
 \end{aligned}$$

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