Section 1.6: Using the Properties

Tuesday, October 01, 2013
8:49 AM

Evaluate:

$75 + 72 + 25 = 172$

$\frac{4}{3} \div 2 = \frac{\cancel{4}^{2}}{3} \cdot \frac{1}{\cancel{2}} = \frac{2}{3}$

$\frac{12}{16} = \frac{3}{4}$ Why? $\frac{12}{16} = \frac{4 \cdot 3}{4 \cdot 4} = \frac{\cancel{4}^{1}}{\cancel{4}} \cdot \frac{3}{4}$

$\frac{\cancel{27}^{3}}{7} \cdot \frac{5}{\cancel{18}_{2}} = \frac{15}{14}$

$\frac{21}{4} \div \frac{3}{16} = \frac{\cancel{21}^{7}}{\cancel{4}} \cdot \frac{\cancel{16}^{4}}{\cancel{3}} = 28$

Like terms:

terms - a single number or the product of a number and one or more variables raised to powers

examples: $5, \quad 6x^3y^{4000}, \quad \pi r^2$

like terms have the same variables raised to the same powers - only the number at front (coefficient) changes

examples: $5x^2$ and $-7x^2$ are like terms

$3x^2y^3$ and $4x^3y^2$ are not like terms

why do we care?

$$5x^2 - 7x^2 = x^2(5-7)$$

$$= -2x^2$$

$$5y^3 - y^3 = 4y^3$$

$$-19m - (-3m) = -16m$$

simplify:

$$3(b^2+8b-4) - 5(b^3-7b+2)$$

$$3b^2 + 24b - 12 - 5b^3 + 35b - 10$$

$$-5b^3 + 3b^2 + 59b - 22$$

$$\frac{100x - 75y}{-5} = -20x + 15y$$

or extra steps:

$$= \frac{100x}{-5} - \frac{75y}{-5}$$

or

$$= \frac{100x - 75y}{-5}\left(\frac{-1}{-1}\right)$$

$$= \frac{-100x + 75y}{5}$$

etc

note: $-20x + 15y = 15y - 20x$

$= 5(3y - 4x)$

perfectly acceptable answer #1

good "cancellation":

$$\frac{4m+6}{2} = 2m+3$$

bad cancellation:

$\frac{4m+6}{2} = 2m+6$

$\frac{m+6}{2} = m+3$

note: $\frac{m+6}{2} = \frac{m}{2} + 3$