Bellwork Hon Alg 2 Monday, June 12, 2017

1. Simplify. State restrictions on the variable. $\dfrac{x^2+x-2}{2x^3+12x^2+16x} \div \dfrac{4x^2+4x-8}{6x^4+48x^3+96x^2}$

Simplify each, don't state restrictions on the variables.

2. $\dfrac{\frac{2x}{y^2}-\frac{5}{2x^3y}}{\frac{7y}{6x^4}+\frac{3}{4x^2y^3}}$

3. $\dfrac{\frac{5}{x^2-9}+\frac{x}{x^2-x-12}}{\frac{3}{4x^2-28x+48}}$

4. $\dfrac{5}{3x^2-15x-18}-\dfrac{7}{2x^3-72x}-\dfrac{8}{x^2+7x+6}$

5. Does each table represent Direct Variation, Inverse Variation, or neither?
If it does represent a variation do the following:
• Write a Variation Equation AND • Find the value of x when $y = 150$

a)

X	Y
−8	20
−5	12.5
3	7.5
7.2	−18
13	−32.5

b)

X	Y
−12	−24
−9	−32
−1.5	−192
5	57.6
8	36

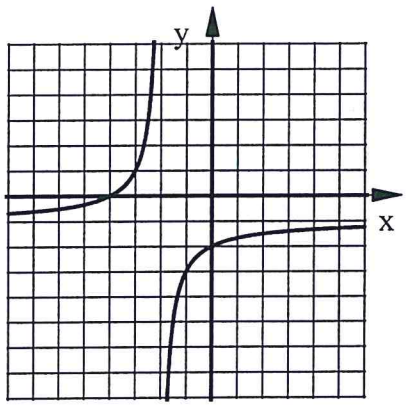
c)

X	Y
−15	55.5
−11	40.7
−6	22.2
4	−14.8
19	−70.3

6. W varies jointly with C and the cube of M and inversely with the product of G and the square of X. $W = 0.648$ when $M = 3$, $C = 6$, $G = 8$, and $X = 10$.

Find the value of M when $W = 500, C = 5, G = 2$, and $X = 11$

7. Write the equation of this graph which is a transformation of $y = \frac{2}{x}$



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Answers

(1) $\dfrac{x^2+x-2}{2x^3+12x^2+16x} \div \dfrac{4x^2+4x-8}{6x^4+48x^3+96x^2}$

$\dfrac{x^2+x-2}{2x(x^2+6x+8)} \div \dfrac{4(x^2+6x-2)}{6x^2(x^2+8x+16)}$

$\dfrac{(x+2)(x-1)}{2x(x+4)(x+2)} \div \dfrac{4(x+2)(x-1)}{6x^2(x+4)(x+4)} \Rightarrow \dfrac{(x+2)(x-1)}{2x(x+4)(x+2)} \cdot \dfrac{6x^2(x+4)(x+4)}{4(x+2)(x-1)}$

$= \dfrac{6x^2(x+4)}{8x(x+2)}$

$\dfrac{3x(x+4)}{4(x+2)}$

$x \neq 0, -4, -2, 1$

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(2) $\dfrac{\dfrac{2x}{y^2} - \dfrac{5}{2x^3y}}{\dfrac{7y}{6x^4} + \dfrac{3}{4x^2y^3}} \cdot \dfrac{12x^4y^3}{12x^4y^3} =$

$\dfrac{24x^5y - 30xy^2}{14y^4 + 9x^2}$

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(3) $\dfrac{\dfrac{5}{x^2-9} + \dfrac{x}{x^2-x-12}}{\dfrac{3}{4x^2-28x+48}} =$

$4x^2-28x+48 \rightarrow 4(x^2-7x+12)$

$\dfrac{\dfrac{5}{(x+3)(x-3)} + \dfrac{x}{(x-4)(x+3)}}{\dfrac{3}{4(x-4)(x-3)}} \cdot \dfrac{4(x-4)(x+3)(x-3)}{4(x-4)(x+3)(x-3)}$

$= \dfrac{\overbrace{5 \cdot 4}^{20}(x-4) + \overbrace{x \cdot 4}^{4x}(x-3)}{3(x+3)}$

$= \dfrac{20x-80+4x^2-12x}{3x+9}$

$= \dfrac{4x^2+8x-80}{3x+9}$

(4) $\dfrac{5}{3x^2-15x-18} - \dfrac{7}{2x^3-72x} - \dfrac{8}{x^2+7x+6}$

$3x^2-15x-18 = 3(x^2-5x-6)$

$2x^3-72x = 2x(x^2-36)$

$= \dfrac{5}{3(x-6)(x+1)} \cdot \dfrac{2x(x+6)}{2x(x+6)} - \dfrac{7}{2x(x+6)(x-6)} \cdot \dfrac{3(x+1)}{3(x+1)} - \dfrac{8}{(x+6)(x+1)} \cdot \dfrac{6x(x-6)}{6x(x-6)}$

$= \dfrac{10x(x+6) - 21(x+1) - 48x(x-6)}{6x(x-6)(x+6)(x+1)}$

$= \dfrac{10x^2+60x-21x-21-48x^2+288x}{6x(x\pm6)(x+1)}$

$= \boxed{\dfrac{-38x^2+327x-21}{6x(x\pm6)(x+1)}}$

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(5) a) Neither

b) INVERSE VARIATION EQ: $xy = 288$ or $y = \dfrac{288}{x}$

$x = 1.92$ when $y = 150$

c) DIRECT VARIATION EQ: $y = -3.7x$ or $\dfrac{y}{x} = -3.7$

$x \approx -40.54$

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(6) $W = \dfrac{kCM^3}{Gx^2}$ $\quad .648 = \dfrac{k(6)(3)^3}{8(10)^2}$ $\quad k = 3.2$

$W = \dfrac{3.2CM^3}{Gx^2}$

$500 = \dfrac{3.2(5)M^3}{2(11)^2}$

$m^3 = 7562.5$

$\boxed{m = 19.63}$

(7) $y = \dfrac{-2}{x+2} - 1$