

Quiz 4

10/28/2022

1. a. $\frac{3x^2y}{12xy^3} = \frac{\cancel{3}x \cdot x \cdot y}{4 \cdot \cancel{3} \cdot x \cdot y \cdot y \cdot y} = \boxed{\frac{xy}{4y^2}}$

b. $\frac{x^2-4y^2}{2x+4y} = \frac{x \cdot x - \cancel{2} \cdot \cancel{2} \cdot x \cdot y}{2 \cdot x + 2 \cdot \cancel{2} \cdot y} = \boxed{\frac{x-y}{2}}$

c. $\frac{x^2+4x-5}{x^2+x-2} = \frac{(x-1)(x+5)}{(x-1)(x+1)} = \boxed{\frac{x+5}{x+1}}$

2.

a. $\frac{18x^3y^2}{24xy^3}$

18 1 18 3 9 3 6	24 1 24 2 12 3 8 4 6
--------------------------	----------------------------------

$\frac{4 \cdot \cancel{x} \cdot x \cdot x \cdot y \cdot y}{3 \cdot \cancel{x} \cdot x \cdot x \cdot y} = \boxed{\frac{4x^2}{3y}}$

b. $\frac{28x^2z-7z}{7x^2z}$

28 1 28 2 14 4 7

$\frac{4 \cdot \cancel{x} \cdot x \cdot \cancel{z} \cdot z - 7z}{\cancel{7} \cdot x \cdot x \cdot \cancel{z}} = \boxed{\frac{4z-7z}{x}}$

3. a. $\frac{x^2-4x-12}{x^2-x-30} = \frac{(x-6)(x+2)}{(x-5)(x+6)}$

12 1 12 2 6 3 4	30 1 30 2 15 3 10 5 6
--------------------------	-----------------------------------

$\boxed{\frac{(x-2)}{(x-5)}}$

b. $\frac{2x^2+3x-5}{3x^2-5x+2}$

$2x^2+3x-5$

$2x^2+2x+5x-5$

$2x(x-1)+5(x-1)$

$\frac{(x-1)(2x+5)}{(3x+2)(x-1)} = \boxed{\frac{2x+5}{3x+2}}$

Product
A · C = 10

2 · 5

$3x^2-5x+2$

Sum
A · C = 6
5
15

$3x^2-3x-2x+2$

$3x(x-1)-2(x-1)$

$$A \cdot C = 64 \quad B = 0$$

$$\begin{array}{r} 64 \\ 1 \ 64 \\ 2 \ 32 \\ 4 \ 16 \\ 8 \ 8 \end{array}$$

$$A \quad B \quad C$$

$$3x^2 - 3x - 6$$

4.

$$a. \frac{4x^2 - 16}{3x^2 - 3x - 6} =$$

$$4x^2 + 8x + 8x - 16$$

$$4x(x-2) + 8(x-2)$$

$$A \cdot C = 18 \quad \text{sum} = 3$$

$$3x^2 - 3x + 6x - 6$$

$$3x(x-1) + 6(x-1)$$

$$\boxed{\frac{(4x+8)(x-2)}{(3x+6)(x-1)}}$$

L

$$b. \frac{xy - 5x + 3y - 15}{xy - 5x + 4y - 20} =$$

$$\frac{x \cdot y \cdot 5 \cdot x \cdot 3 \cdot y \cdot 3 \cdot 5}{x \cdot y \cdot 5 \cdot x \cdot 2 \cdot 2 \cdot y \cdot 5 \cdot 4}$$

$$xy - 5x + 4y - 20$$

$$\boxed{\frac{9}{16}}$$

$$A \cdot C \quad \text{sum}$$

$$1 \cdot 1 = 1 \quad = 0$$

$$5. \frac{x^2 + 2x - 8}{x^2 - 1} \cdot \frac{x+1}{x+4} =$$

$$\frac{(x+2)(x-4)}{(x-1)(x+1)}$$

$$\frac{(x+1)}{(x+4)}$$

$$\frac{(x+2)(x-4)}{(x-1)(x+1)}$$

$$\frac{(x+1)}{(x+4)}$$

$$\boxed{\frac{(x+2)}{(x-1)}}$$

$$6. \frac{x-3}{x-5} \cdot \frac{(x-5)(x+5)}{(x-3)(x+3)} =$$

$$\boxed{\frac{(x+5)}{(x-3)}}$$

7.

$$a. \frac{(x+2) \cdot 5}{3x+6} =$$

$$\frac{(x+2) \cdot 5}{3(x+2)}$$

$$\boxed{\frac{5}{3}}$$

$$b. \frac{3x}{2x-10} \div (x-5) =$$

$$\frac{3x}{2(x-5)} \div (x-5) =$$

$$\boxed{\frac{3x}{2}}$$

$$8. \frac{x}{(x+2)(x-2)} + \frac{(x+2)(x-2)}{2} = \boxed{\frac{x}{2}}$$

8.

$$a. \frac{x}{x^2-4} + \frac{2}{x^2-4} = \frac{x+2}{x^2-4} = \frac{x+2}{(x+2)(x-2)} = \boxed{x-2}$$

$$b. \frac{x}{x^2-4} - \frac{2}{x^2-4} = \frac{x-2}{x^2-4} = \frac{x-2}{(x+2)(x-2)} = \boxed{x+2}$$

$$9. \frac{2 \cdot 2x}{2 \cdot 3} + \frac{x \cdot 1}{6 \cdot 1} = \frac{2x+2}{6} = \frac{4x+4}{6} = \frac{5x}{6} \cdot 12$$

$$\frac{x^2}{12}$$

$$\frac{60x}{6} = \frac{10x}{x^2} = \boxed{\frac{10}{x}}$$

$$10. \frac{x}{x+3} + \frac{1}{4} = \frac{x}{2x+6} = \frac{x}{x+3} + \frac{1}{4} = \frac{x}{2(x+3)} = \frac{1}{4} = \frac{x}{2(x+3)} - \frac{x}{x+3}$$

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