

Scavenger Hunt

Rational Expressions

What values must be excluded from the domain?

1. $\frac{x-9}{x^2-6x+8}$

2. $\frac{x^2-64}{x^2-12x+32}$

Simplify completely

1. $\frac{9x^2-55x+6}{x-6}$

2. $\frac{4+\frac{2}{x}}{\frac{x}{4}+\frac{1}{8}}$

3. $\frac{2x+2}{10x^2+16x+6}$

4. $\frac{4x+3}{12x^2+17x+6}$

5. $\frac{4+\frac{2}{x}}{\frac{x}{3}+\frac{1}{6}}$

Perform the given operation

1. $\frac{3x}{x^2+3x-10} - \frac{2x}{x^2+x-6}$

2. $\frac{x^2+x-12}{x^2+x-30} \cdot \frac{x^2+5x+6}{x^2-2x-3} \div \frac{x+3}{x^2+7x+6}$

$$3. \frac{4x^2 + 10}{x - 3} \div \frac{6x^2 + 15}{x^2 - 9}$$

$$4. \frac{x^2 - 5x + 6}{x^2 - 2x - 3} \cdot \frac{x^2 - 1}{x^2 - 4}$$

$$5. \frac{x^2 - 7x}{x - 2} + \frac{10}{x - 2}$$

$$6. \frac{x^2 - 4}{x - 2} \div \frac{x + 2}{4x - 8}$$

$$7. \frac{4}{x - 12} - \frac{3}{12 - x}$$

$$8. \frac{x^2 - 8x + 16}{3x - 12} \div \frac{12x - 48}{36}$$

$$9. \frac{x^2 - 5x}{x - 3} + \frac{6}{x - 3}$$

$$10. \frac{x^2 + 15x + 56}{x^2 + 16x + 63} \cdot \frac{x^2 + 9x}{x^2 + 17x + 72}$$

$$11. \frac{6x^2 + 17x - 40}{x^2 + x - 20} + \frac{3}{x - 4} - \frac{5x}{x + 5}$$

$$12. \frac{x + 3}{x - 3} + \frac{x - 3}{x + 3}$$

Scavenger Hunt

Rational Expressions

What values must be excluded from the domain?

✓ 1. $\frac{x-9}{x^2-6x+8}$ $x \neq 4, 2$

✓ 2. $\frac{x^2-64}{x^2-12x+32}$ $x \neq 8, 4$

Simplify completely

✓ 1. $\frac{9x^2-55x+6}{x-6}$ $9x-1$

✓ 2. $\frac{4+\frac{2}{x}}{\frac{x}{4}+\frac{1}{8}}$ $\frac{16}{x}$

✓ 3. $\frac{2x+2}{10x^2+16x+6}$ $\frac{1}{5x+3}$

✓ 4. $\frac{4x+3}{12x^2+17x+6}$ $\frac{1}{3x+2}$

✓ 5. $\frac{4+\frac{2}{x}}{\frac{x}{3}+\frac{1}{6}}$ $\frac{12}{x}$

Perform the given operation

1. $\frac{3x}{x^2+3x-10} - \frac{2x}{x^2+x-6}$ $\frac{x^2-x}{(x+5)(x-2)(x+3)}$

✓ 2. $\frac{x^2+x-12}{x^2+x-30} \cdot \frac{x^2+5x+6}{x^2-2x-3} \div \frac{x+3}{x^2+7x+6}$ $\frac{(x+4)(x+2)}{x-5}$

- ✓ 3. $\frac{4x^2+10}{x-3} \div \frac{6x^2+15}{x^2-9}$ $\frac{2(x+3)}{3}$
- ✓ 4. $\frac{x^2-5x+6}{x^2-2x-3} \cdot \frac{x^2-1}{x^2-4}$ $\frac{x-1}{x+2}$
- ✓ 5. $\frac{x^2-7x}{x-2} + \frac{10}{x-2}$ $x-5$
- ✓ 6. $\frac{x^2-4}{x-2} \div \frac{x+2}{4x-8}$ $4(x-2)$
- ✓ 7. $\frac{4}{x-12} - \frac{3}{12-x}$ $\frac{7}{x-12}$
- ✓ 8. $\frac{x^2-8x+16}{3x-12} \div \frac{12x-48}{36}$ 1
- ✓ 9. $\frac{x^2-5x}{x-3} + \frac{6}{x-3}$ $x-2$
- ✓ 10. $\frac{x^2+15x+56}{x^2+16x+63} \cdot \frac{x^2+9x}{x^2+17x+72}$ $\frac{x}{x+9}$
- ✓ 11. $\frac{6x^2+17x-40}{x^2+x-20} + \frac{3}{x-4} - \frac{5x}{x+5}$ $\frac{x^2+40x-25}{x^2+x-20}$
- ✓ 12. $\frac{x+3}{x-3} + \frac{x-3}{x+3}$ $\frac{2x^2+18}{(x-3)(x+3)}$

WHAT VALUES MUST BE EXCLUDED
FROM THE DOMAIN FOR:

$$\frac{x-9}{x^2-6x+8}$$

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WHAT VALUES MUST BE EXCLUDED
FROM THE DENOMINATOR FOR:

$$\frac{x^2 - 64}{x^2 - 12x + 32}$$

$$x^2 - 12x + 32$$




$$x^2 + 40x - 25$$

$$(x+5)(x-4)$$

SIMPLIFY

$$9x^2 - 55x + 6$$

$$x - 6$$


$$4(x - 2)$$

SIMPLIFY

$$\frac{4 + \frac{2}{x}}{\frac{x}{4} + \frac{1}{8}}$$

$$\frac{7}{x-12}$$

SIMPLIFY

$$\frac{2x + 2}{10x^2 + 16x + 6}$$

$x \neq 4, 2$

SIMPLIFY

$$\frac{4x + 3}{12x^2 + 17x + 6}$$

$x \neq 4, 8$

SIMPLIFY

$$\frac{4 + \frac{2}{x}}{\frac{x}{3} + \frac{1}{6}}$$


$$x-2$$

SUBTRACT

$$\frac{3x}{x^2 + 3x - 10} - \frac{2x}{x^2 + x - 6}$$

$$\frac{(x+4)(x+2)}{(x-5)}$$

$$\frac{x^2 + x - 12}{x^2 + x - 30} \cdot \frac{x^2 + 5x + 6}{x^2 - 2x - 3} \div \frac{x + 3}{x^2 + 7x + 6}$$



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

DEVIDE

$$\frac{4x^2 + 10}{x - 3}$$

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$$\frac{6x^2 + 15}{x^2 - 9}$$



$$\frac{x - 1}{x + 2}$$

MULTIPLY

$$\frac{x^2 - 5x + 6}{x^2 - 2x - 3} \cdot \frac{x^2 - 1}{x^2 - 4}$$

$$x - 5$$

ADD

$$\frac{x^2 - 7x}{x - 2} + \frac{10}{x - 2}$$


$$9x - 1$$

DIVIDE

$$\frac{x^2 - 4}{x - 2}$$


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$$\frac{x + 2}{4x - 8}$$

$$\frac{16}{x}$$

SUBTRACT

$$\frac{4}{x-12} - \frac{3}{12-x}$$


$$\frac{1}{5x+3}$$

DIVIDE

$$\frac{x^2 - 8x + 16}{3x - 12}$$

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$$\frac{12x - 48}{36}$$



$$\frac{12}{x}$$


ADD

$$\frac{x^2 - 5x}{x - 3} + \frac{6}{x - 3}$$



$$\frac{x}{x + 9}$$

MULTIPLY

$$\frac{x^2 + 15x + 56}{x^2 + 16x + 63} \cdot \frac{x^2 + 9x}{x^2 + 17x + 72}$$



$$\frac{1}{3x + 2}$$

$$\frac{6x^2 + 17x - 40}{x^2 + x - 20} + \frac{3}{x-4} - \frac{5x}{x+5}$$


$$\frac{2x^2 + 18}{(x-3)(x+3)}$$

ADD

$$\frac{x+3}{x-3} + \frac{x-3}{x+3}$$


$$\frac{x^2 - x}{(x+3)(x-2)(x+3)}$$