9.5 Solving Rationals D2

Warm-Up Thursday

$$\frac{2x}{6x^2 - 5} = \frac{1}{3x + 10}$$

About Me

1. Would you rather go to jail for 4 years for something you didn't do or get away with something horrible you did but always live in fear of being caught?

9.5 Solving Rationals D2

EQ: How do I solve a rational equation?

1. $\dfrac{3}{3} \cdot \dfrac{2}{y} + \dfrac{4}{3y} = \dfrac{1}{3} \cdot \dfrac{y}{y}$

* Find common denominator across entire equation

CD: $3y$

$$\dfrac{6}{3y} + \dfrac{4}{3y} = \dfrac{y}{3y}$$

$$6 + 4 = y$$

$$\boxed{10 = y}$$

9.5 Solving Rationals D2

EQ: How do I solve a rational equation?

2. $\dfrac{8h}{8h} \cdot \dfrac{4}{1} = \dfrac{h \cdot 5}{8} + \dfrac{3}{h} \cdot \dfrac{8}{8}$ CD: $8h$

$$\dfrac{32h}{8h} = \dfrac{5h}{8h} + \dfrac{24}{8h}$$

$$32h = 5h + 24$$

$$\dfrac{27h}{27} = \dfrac{24}{27}$$

$$\boxed{h = 8/9}$$

9.5 Solving Rationals D2

EQ: How do I solve a rational equation?

3. $\dfrac{6}{6} \cdot \dfrac{1}{2y} - \dfrac{1}{4} \overset{\cdot \frac{3}{3y}}{=} \dfrac{(3-y)}{3y} \cdot \dfrac{4}{4}$ CD: $12y$

$$\dfrac{6}{12y} - \dfrac{3y}{12y} = \dfrac{4(3-y)}{12y}$$

$$6 - 3y = 12 - 4y$$

$$-6 + 4y \qquad -6 + 4y$$

$$\boxed{y = 6}$$

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EQ: How do I solve a rational equation?

4. $\dfrac{6}{6} \cdot \dfrac{5}{(n+2)} - \dfrac{n+6}{(n+2)} = -\dfrac{5}{6} \cdot \dfrac{(n+2)}{(n+2)}$ CD : $6(n+2)$

$$\frac{30}{6(n+2)} - \frac{6(n+6)}{6(n+2)} = -\frac{5(n+2)}{6(n+2)}$$

$$30 - 6(n+6) = -5(n+2)$$

$$30 - 6n - 36 = -5n - 10$$

$$-6n - 6 = -5n + 10$$

$$+6n + 10 \qquad +6n +10$$

$$\boxed{4 = n}$$

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EQ: How do I solve a rational equation?

FACTOR

5. $\dfrac{x+5}{x+5} \cdot \dfrac{2}{x-2} = \dfrac{x}{x-2} \cdot \dfrac{x+5}{x+5} + \dfrac{6}{x^2+3x-10}$

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

CD: $(x-2)(x+5)$

$$\frac{2(x+5)}{(x+5)(x-2)} = \frac{x(x+5)}{(x+5)(x-2)} + \frac{6}{(x-2)(x+5)}$$

$$2x+10 = x^2+5x+6$$
$$-2x-10 \qquad -2x-10$$

$$0 = x^2+3x-4$$

$$0 = (x+4)(x-1)$$

$$\boxed{x = -4, \, 1}$$

PreCalculus
9.5 Worksheet: Solve Rational Equations

Name _____

Date _____ Period _____

Solve:

1. $\dfrac{11}{2n} = \dfrac{3}{n} - \dfrac{5}{2}$

2. $\dfrac{3}{x} + \dfrac{2}{5} = 1$

3. $\dfrac{9}{2m} - \dfrac{m+4}{4m} = \dfrac{5}{36}$

$\dfrac{z-5}{3z} - 2 = -\dfrac{10}{z}$

5. $\dfrac{2}{r} + \dfrac{r-1}{3r} = \dfrac{2}{5}$

6. $\dfrac{3}{x+3} = \dfrac{x+15}{x+3} - 2$

7.　$\dfrac{3}{y+1} + 4 = \dfrac{3y+16}{y+1}$

8.　$\dfrac{3}{x+5} + \dfrac{1}{2} = \dfrac{x+3}{x+5}$

9.　$\dfrac{3a^2-10}{2a^2-5a} - 1 = \dfrac{a}{2a-5}$

10.　$\dfrac{4}{b} + \dfrac{6}{b-6} = \dfrac{16}{b^2-6b}$

11.　$\dfrac{10}{x+3} + \dfrac{10}{3} = 6$

12.　$\dfrac{2x}{5} = \dfrac{x^2-5x}{5x}$

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EQ: How do I solve a rational equation?

Exit Ticket

I'm not sure where your exit ticket might be...