Additional Problems: Rational Expressions & Equations

**Solving Rational Equations**

**Some problems include the solution. Please remove before sharing with students.**

1. Solve for x: $\frac{1}{5x}-\frac{6}{5x^{2}}=\frac{1}{x}$

\*\*Solution = $x=-6$

1. Solve for x: $1=\frac{6}{3k-2}+\frac{k-1}{3k-2}$

\*\*Solution: $k=3$

1. Solve for x: $3=\frac{12}{5p-4}+\frac{p-2}{5p-4}$

\*\*Solution: $p=7$

1. Solve for x: 2$=\frac{10}{4n-3}+\frac{n-4}{4n-3}$

\*\*Solution: $n=5$

1. Identify the equivalent expression in the equation $\frac{1}{y^{2}-y}+\frac{1}{y}=\frac{4}{y^{2}-y}$ and demonstrate multiplying by the common denominator.

\*\*Solution: $\left(y^{2}-y\right)\left(\frac{1}{y^{2}-y}\right)+\left(y^{2}-y\right)\left(\frac{1}{y}\right)=(y^{2}-y)(\frac{4}{y^{2}-y})$

1. What is the least common denominator of the equation $\frac{3}{x-4}+\frac{2}{x^{2}-16}=\frac{5}{x^{2}-16}$?

\*\*Solution: $(x-4)(x+4)$

1. What is the least common denominator of the equation $\frac{4}{x-7}+\frac{6}{x^{2}-14x+49}=\frac{8}{x^{2}-14x+49}$?

\*\*Solution: $(x-7)^{2}$

1. What is the least common denominator of the equation $\frac{7}{x+6}-\frac{1}{x^{2}+12x+36}=\frac{3}{x^{2}+12x+36}$?

\*\* Solution: $(x+6)^{2}$

1. Ethan can type a report in 15 minutes. When his friend Olivia helps him, it takes them 6 minutes. What is the rational equation that can determine the rate Olivia types the report?

\*\*Solution: $\frac{1}{15}+\frac{1}{x}=\frac{1}{6}$

1. Ethan can type a report in 15 minutes. When his friend Olivia helps him, it takes them 6 minutes. What is the rate that Olivia types 1 report?

\*\*Solution: 10 minutes

1. Jake can assemble a bicycle in 20 minutes. When his friend Emma helps him, it takes them 8 minutes. What is the rational equation that can determine the rate Emma assembles the bicycle?

\*\*Solution: $\frac{1}{20}+\frac{1}{x}=\frac{1}{8}$

1. Jake can assemble a bicycle in 20 minutes. When his friend Emma helps him, it takes them 8 minutes. What is the rate that Emma assembles 1 bicycle?

\*\*Solution:13.33 minutes

1. Maria can paint a wall in 10 minutes. When her friend Alex helps her, it takes them 4.5 minutes. What is the rational equation that can determine the rate Alex paints the wall?

\*\*Solution: $\frac{1}{10}+\frac{1}{x}=\frac{1}{4.5}$

1. Maria can paint a wall in 10 minutes. When her friend Alex helps her, it takes them 4.5 minutes. What is the rate that Alex paints 1 wall?

\*\*Solution: 8.18 minutes