Solving Rational Equalities

Examples

1. Solve $\frac{2}{x+2} = \frac{2x+1}{x+1}$

2. Solve $\frac{2x^2-x}{3} - 4 = \frac{3}{x}$

3. Solve and illustrate graphically: $\frac{x}{x-4} = \frac{1}{x-3}$

4. In a basketball tournament, Alvin attempts 20 free throws, making 40% of them. How many consecutive free throws must he make to increase his percentage to 50%?

5. Working together, Melanie and Don can clean their house in 6 hours. Melanie can clean the house herself in 10 hours. How long does it take Don to clean the house himself?

Assigned Problems

1. Solve each algebraically.

a) $\frac{x-2}{x+3} = \frac{x+4}{x-1}$ b) $\frac{2x}{x-3} = 5$ c) $\frac{4x-3}{2x+1} = \frac{2x+1}{x-4}$ d) $\frac{x+3}{3x-5} + 1 = \frac{3(x-2)}{x-1}$

2. Sketch functions to model the solutions for 1abc.

3. Judy and Greg have a large property to maintain. They usually work together to mow the lawn; Judy using the riding mower and Greg using the push mower. Together they take 45 minutes to mow the lawn. On her own, Judy can mow the lawn in 1 hour. How long would it take Greg to mow the entire lawn on his own, using the push mower?

4. Pedro left home at noon and cycled 72km to his family cottage. His sister, Alexandria, left home on her bike at 1pm and arrived at the cottage 12 minutes after Pedro. If she cycles, on average, 3 km/h faster than Pedro, how long did it take Pedro to make the trip, and what was his average speed?

Answers

1. a) x = -1 b) x = 5 c) x= 11/23 d) x=7/5, 4 3. 180 minutes 4. 4 hours and 48 minutes, 15km/h