



Sydney and Naomi set off at the same time on a 30-km walk for charity. Sydney, who has trained all year for this event, walks 1 km/h faster than Naomi. Sydney finishes the walk 1 h ahead of Naomi. How fast was each walking, and how long did it take for each to finish the walk?

Let x represent Naomi's walking speed.

	Distance (km)	Speed (km/h)	Time (h)
Sydney	30	$x+1$	$\frac{30}{x+1}$
Naomi	30	x	$\frac{30}{x}$

$$\frac{30}{x} - \frac{30}{x+1} = 1$$

$$\frac{30(x+1)}{x(x+1)} - \frac{30x}{x(x+1)} = \frac{x(x+1)}{x(x+1)}$$

$$30(x+1) - 30x = x(x+1)$$

$$\cancel{30x} + 30 - \cancel{30x} = x^2 + x$$

$$0 = x^2 + x - 30$$

$$0 = (x+6)(x-5)$$

$$x = -6 \text{ or } \boxed{5}$$

Pre-Calculus 110
Unit 5: Rational Expressions and Equations

May 6, 2019: Day #9

1. Assignments Due Wednesday
2. Test on Friday

Curriculum Outcomes

AN4: Determine equivalent forms of rational expressions (limited to numerators and denominators that are monomials, binomials or trinomials).

AN5: Perform operations on rational expressions (limited to numerators and denominators that are monomials, binomials or trinomials).

AN6: Solve problems that involve rational equations (limited to numerators and denominators that are monomials, binomials or trinomials).

AN4: Determine equivalent forms of rational expressions (limited to numerators and denominators that are monomials, binomials or trinomials).

ACHIEVEMENT INDICATORS

§ Compare the strategies for writing equivalent forms of rational expressions to the strategies for writing equivalent forms of rational numbers.

§ Explain why a given value is non-permissible for a given rational expression.

§ Determine the non-permissible values for a rational expression.

§ Determine a rational expression that is equivalent to a given rational expression by multiplying the numerator and denominator by the same factor (limited to a monomial or a binomial), and state the non-permissible values of the equivalent rational expression.

§ Simplify a rational expression.

§ Explain why the non-permissible values of a given rational expression and its simplified form are the same.

AN5: Perform operations on rational expressions (limited to numerators and denominators that are monomials, binomials or trinomials).

ACHIEVEMENT INDICATORS

§ Compare the strategies for performing a given operation on rational expressions to the strategies for performing the same operation on rational numbers.

§ Determine the non-permissible values when performing operations on rational expressions.

§ Determine, in simplified form, the sum or difference of rational expressions with the same denominator.

§ Determine, in simplified form, the sum or difference of rational expressions in which the denominators are not the same and which may or may not contain common factors.

§ Determine, in simplified form, the product or quotient of rational expressions.

§ Simplify an expression that involves two or more operations on rational expressions.

AN6: Solve problems that involve rational equations (limited to numerators and denominators that are monomials, binomials or trinomials).

ACHIEVEMENT INDICATORS

§ Determine the non-permissible values for the variable in a rational equation.

§ Determine the solution to a rational equation algebraically, and explain the process used to solve the equation.

§ Explain why a value obtained in solving a rational equation may not be a solution of the equation.

§ Solve problems by modeling a situation using a rational equation.

Format:

5 Multiple Choice

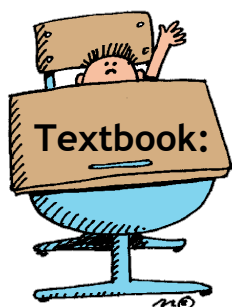
5 Open Response

1 Bonus

Total = 25 Marks

Topics:

1. Identifying non-permissible roots
2. Simplifying rational expressions
3. Multiplying and dividing rational expressions
4. Adding and subtracting rational expressions
5. Solving rational equations
6. Identify the error and correct
7. Word Problem



Minimum Preparation:

p. 352-354

3, 5, 6b, 9, 10, 11, 13, 14, 15, 20, 22, 23

Attachments

Standard Form Demor.GSP

Warm ups.notebook