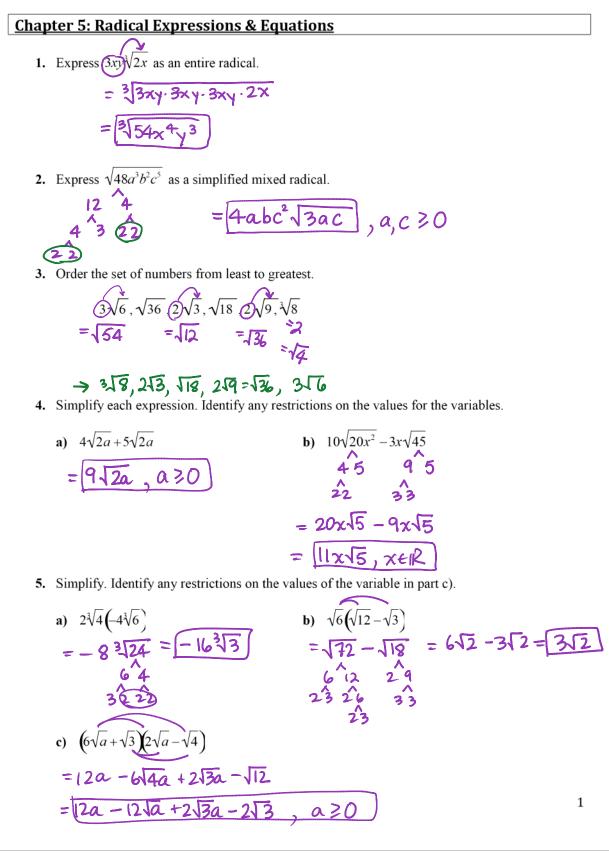
Ch. 5 & 6 Solutions

May-05-16 9:40 AM

Review 3: Chapters 5 & 6



Math 11 Pre-Calculus
Get rid of
$$\sqrt{10}$$
 in denominator! Review 3: Chapters 5 & 6
6. Rationalize each denominator.
a) $\frac{\sqrt{12}}{\sqrt{4}} = \frac{\sqrt{12}}{2}$ b) $\frac{2}{(2+\sqrt{3})}(2-\sqrt{3})$ c) $\frac{(\sqrt{7}+\sqrt{28})}{(\sqrt{7}-\sqrt{14})}(\sqrt{7}+\sqrt{14})}{(\sqrt{7}+\sqrt{14})}$ 98
 $= \frac{\sqrt{13}}{2}$ $= \frac{4-2\sqrt{3}}{4-2\sqrt{3}+2\sqrt{3}-3}$ $= 7+\sqrt{88}+\sqrt{128}+\sqrt{28}/4$
 $= \sqrt{4}+\sqrt{3}+\sqrt{28}+\sqrt{14}+\sqrt{28}/4$ $= \sqrt{4}+\sqrt{3}/2$
 $= \sqrt{4}+\sqrt{8}+14+\sqrt{28}/4$ $= \sqrt{4}+\sqrt{3}/2$
7. Solve the radical equation $(\sqrt{x+6})^{=}(x)^{2}$ Verify your anwer(s).
 $\times +(6=\chi^{2})$ $= -\frac{7}{7}$ $= -\frac{7}{7}$
 $O = (\chi -3)(\chi + 2)$ $\chi = 3, -2$ $Chack:$
 $\sqrt{-2+(6)} = -2$ χ
 $(extraneous)$

8. On a children's roller coaster ride, the speed in a loop depends on the height of the hill the car has just come down and the radius of the loop. The velocity, v, in feet per second, of a car at the top of a loop of radius r, in feet, is given by the formula $v = \sqrt{h-2r}$, where h is the height of the previous hill, in feet.

a) Find the height of the hill when the velocity at the top of the loop is 20 ft/s and the radius of the loop is 15 ft.

$$20 = \sqrt{h-2(15)}$$

$$(20)^{2} = (\sqrt{h-30})^{2}$$

$$400 = h-30$$

$$430 = h$$
The height is 430 feet.

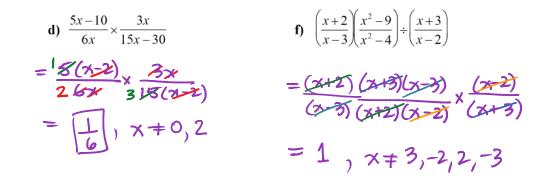
b) Would you expect the velocity of the car to increase or decrease as the radius of the loop increases? Explain your reasoning. h=100

Increase
$$r = 10$$
 $r = 20$
 $V = \sqrt{100 - 2(10)}$ $V = \sqrt{100 - 2(20)}$
 $V = \sqrt{80}$ $V = \sqrt{60}$
The velocity decreases. 2

Chapter 6: Rational Expressions & Equations

9. Simplify each expression. Identify any non-permissible values.

a)
$$\frac{1}{4} \frac{12}{48} \frac{1}{4} \frac{1}{48} \frac{1}{48} \frac{1}{4} \frac{1}{48} \frac{1}{4} \frac{1}{48} \frac{1}{4} \frac{1}{4} \frac{1}{4} \frac{1}{48} \frac{1}{4} \frac{$$



10. Determine the sum or difference. Express answers in lowest terms. Identify any non-permissible values. Find Common Denominator (LCD)

$$\begin{array}{l} \begin{array}{l} (a-7)_{10} \\ a) \frac{1}{a+2} + \frac{a-1}{a-7} \\ \end{array} \\ b) \frac{3x+2}{x+2} - \frac{x-5}{x^2-4} = \frac{35x+2}{7x+2} - \frac{x-5}{(x+2)(x-2)} \\ \\ LCD = (a+2)(a-7) \\ = \frac{10(a-7) + (a-1)(a+2)}{(a+2)(a-7)} \\ = \frac{10a-70 + a^2 + 2a - a - 2}{(a+2)(a-7)} \\ \end{array} \\ c) \frac{10a-70 + a^2 + 2a - a - 2}{(a+2)(a-7)} \\ = \frac{3x^2 - 6x + 2x - 4 - x + 5}{(x+2)(x-2)} \\ = \frac{3x^2 - 6x + 2x - 4 - x + 5}{(x+2)(x-2)} \\ \end{array}$$

3

(7-5)

Math 11 Pre-Calculus

Review 3: Chapters 5 & 6

c)
$$\frac{2x}{x^2-25} - \frac{3}{x^2-4x-5} = \frac{(x+t)}{(x+5)(x-5)} - \frac{3}{(x+5)} L(1) = (x+5)(x-5)(x+1)$$

$$= \frac{2x(x+1) - 3(x+5)}{(x+5)(x-5)(x+1)}$$

$$= \frac{2x^2 + 2x - 3x - 15}{(x+5)(x-5)(x+1)}$$

$$= \frac{2x^2 + 2x - 3x - 15}{(x+5)(x-5)(x+1)}$$

11. Sandra simplified the expression $\frac{(x+2)(x+5)}{x+5}$ to x+2. She stated that they were equivalent expressions. Do you agree or disagree with Sandra's statement? Explain.

12. Mrs. Baldwin marks 1 set of tests in 2 hours. If she and Mr. Suderman work together, they can mark 1 set of tests in only 2/3 of an hour. How long does Mr. Suderman take if he marks the set of tests alone?

$$R_{B} = \frac{1}{2} \notin class$$

$$R_{B} = \frac{1}{2} \# class$$

$$R_{B} = \frac{1}{2} \# class$$

$$R_{B} + R_{S} = R_{c}$$

$$\left(\frac{1}{2} + \frac{1}{x} = \frac{3}{2}\right) \times 2x$$

$$\left(\frac{1}{2} + \frac{1}{x} = \frac{3}{2}\right) \times 2x$$

$$x + 2 = 3x$$

$$2 = 2x$$

$$x = 1$$

Mr. Suderman takes 1 hour