

Chapter 8 Review

May 11-8:57 AM

Simplify. Identify any x -values for which the expression is undefined.

$$\frac{4x^6}{2x-6}$$

$$\frac{2 \cancel{x}^6}{1 \cdot 2(x-3)}$$

$$\frac{2x^6}{x-3} \quad x \neq 3$$

$$2(x-3) = 0$$

$$x-3 = 0$$

$$\frac{-x-4}{x^2-x-20}$$

$$\frac{-(\cancel{x+4})}{(\cancel{x+4})(x-5)}$$

$$\frac{-1}{x-5} \quad x \neq -4$$

$$x \neq 5$$

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Multiply. Assume that all expressions are defined.

$$\frac{\cancel{x-2}}{\cancel{2x-3}} \cdot \frac{2(2x-3)}{x^2-4}$$

$(x+2)(\cancel{x-2})$

$$\frac{2}{x+2}$$

$$\frac{(x-4)(\cancel{x-4})}{x^2-16} \cdot \frac{\cancel{x-2}}{x^2+6x+8}$$

$(x-2)(\cancel{x-2})$ $(x+4)(x+2)$

$$\frac{x-4}{(x-2)(x+2)}$$

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Divide. Assume that all expressions are defined.

$$\frac{x^5y^4}{3xy} \div \frac{1}{x^3y}$$

$$\frac{x^5y^4}{3xy} \cdot \frac{x^3y}{1} = \frac{x^7y^4}{3}$$

$$\frac{x+3}{x^2-2x+1} \div \frac{x+3}{x-1}$$

$$\frac{\cancel{x+3}}{(x-1)(x-1)} \cdot \frac{\cancel{x-1}}{x+3} = \frac{1}{x-1}$$

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Solve. Check your solution.

$$\frac{(4x+3)(4x-3)}{16x^2-9} = -6$$

No Solution

$$\frac{16\left(\frac{-3}{4}\right)^2 - 9}{4\left(\frac{-3}{4}\right) + 3}$$

0

$$4x - 3 = -6$$

$$+3 \quad +3$$

$$4x = -3$$

$$\frac{4x}{4} = \frac{-3}{4}$$

~~$$x = -\frac{3}{4}$$~~

$$(2x-3)(x+5)$$

$$\frac{2x^2 + 7x - 15}{2x-3} = 10$$

$$x+5 = 10$$

$$-5 \quad -5$$

$$x = 5$$

check

⋮

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Add or subtract. Identify any x-values for which the expression is undefined.

$$\frac{3x-4}{4x+5} + \frac{-5x-3}{4x+5}$$

$$\frac{-2x-7}{4x+5}$$

$$\frac{-(2x+7)}{4x+5}$$

$$\frac{4x-5}{12x+4} + \frac{(3x-1)}{(3x+1)} \cdot 4$$

$$4(3x+1)$$

$$\frac{4x-5}{4(3x+1)} + \frac{12x-4}{4(3x+1)}$$

$$\frac{16x-9}{4(3x+1)}$$

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Solve each equation.

$$\frac{x}{x-3} + \frac{x}{4} = \frac{6x}{2(x-3)}$$

$$2x + x(x-3) = 6x$$

$$2x + x^2 - 3x = 6x$$

$$x^2 - x = 6x$$

$$x^2 - 7x = 0$$

$$x(x-7) = 0$$

$$x=0 \quad x=7$$

check
:
|

$$\frac{-2x}{x+2} + \frac{x}{3} = \frac{4}{x+2}$$

$$-6x + x(x+2) = 12$$

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Find all real roots.

4th roots of 1

$$1^4 = 1 \quad +1$$

$$(-1)^4 = 1 \quad -1$$

cube roots of 27

$$3^3 = 27 \quad 3$$
~~$$(-3)^3 = -27$$~~

square roots of 81

$$+9$$

$$-9$$

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Simplify each expression. Assume all variables are positive.

$$1. \sqrt[3]{125x^9}$$

$$5x^3$$

$$\sqrt[3]{\frac{x^7}{27x^3}}$$

$$\sqrt[3]{\frac{x^4}{27}} = \frac{\sqrt[3]{x^3 x}}{3}$$

$$\frac{x\sqrt[3]{x}}{3}$$

$$\sqrt[3]{2x} \cdot \sqrt[3]{4x^2}$$

$$\sqrt[3]{8x^3}$$

$$2x$$

$$\sqrt[3]{\frac{8x^6}{4}} = \sqrt[3]{2x^6}$$

$$x^2\sqrt[3]{2}$$

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Solve each equation.

$$\left(\sqrt{4x+4}\right)^2 = \left(2\sqrt{4x-9}\right)^2$$

$$4x+4 = 4(4x-9)$$

$$\left(\sqrt{2x+48}\right)^2 = x^2$$

$$2x+48 = x^2$$

$$0 = x^2 - \dots$$

May 12-10:47 AM

Assignment: p.609 (3-11,17-19) &
p.637 (1-3,17-19)

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