

EXTRA PRACTICE — Exercises

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Unit VI – Second Degree Relations and Higher - Algebraic Fractions Part A – Operations Lesson 3 – Division

For each of the following, find the quotient, simplify your result, and note any restricted values.

$$1. \frac{4a+8}{5a-20} \div \frac{10+3a-a^2}{a^2-4a}$$

$$2. \frac{8x+40}{6x^3} \div \frac{4x+20}{8x^5}$$

$$3. \frac{x^2-9}{6} \div \frac{3-x}{8}$$

$$4. \frac{3x^2-2xy}{8x^3y} \div \frac{9x^2-4y^2}{12x^2y^5}$$

$$5. \frac{2y^2-18}{24-6y} \div \frac{3y^2+24y+45}{2y^2-9y+11}$$

$$6. \frac{4ab^3}{3a^2-a-10} \div \frac{6a^5b^7}{3a^2+17a+10}$$

$$7. \frac{x^2y^4}{6a^2} \div \frac{x^4y}{10a^2}$$

$$8. \frac{3x^2+14x-5}{x^2+2x-15} \div \frac{3x^2-25x+8}{8+15x-2x^2}$$

$$9. \frac{x^2+2x-3}{x^2-2x+1} \div \frac{x^2+5x+6}{2-x-x^2}$$

$$10. \frac{4c+6}{49d^3e^9} \div \frac{2c^2+5c+3}{7d^3e^4}$$

EXTRA PRACTICE — Answer Key

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For each of the following, find the quotient, simplify your result, and note any restricted values.

1. $\frac{4a}{-5(a-5)}$

Restricted Values: $a \neq 5, a \neq -2$

2. $\frac{8x^2}{3}$

Restricted Values: $x \neq 0, x \neq -5$

3. $\frac{4(x+3)}{-3}$

Restricted Values: $x \neq 3$

4. $\frac{48y^4(x+5)}{x(3x-2y)(3x+2y)}$

Restricted Values: $x \neq \frac{2y}{3}, x \neq \frac{-2y}{3}, x \neq 0, y \neq 0$

5. $\frac{(y-3)(2y-11)(y+1)}{-9(y-4)(y+5)}$

Restricted Values: $y \neq 4, y \neq \frac{11}{2},$
 $y \neq -1, y \neq -3, y \neq -5$

6. $\frac{2(3a+2)(a+5)}{3a^4b^4(3a+5)(a-2)}$

Restricted Values: $a \neq \frac{-5}{3}, a \neq 2, a \neq \frac{-2}{3},$
 $a \neq -5, a \neq 0, b \neq 0$

7. $\frac{5y^3}{3x^2}$

Restricted Values: $a \neq 0, x \neq 0, y \neq 0$

8. $\frac{-2x-1}{x-3}$ or $\frac{2x+1}{3-x}$

Restricted Values: $x \neq -5, x \neq 3, x \neq \frac{-1}{2}, x \neq 8$

9. -1

Restricted values: $x \neq 1, x \neq -2, x \neq -3$

10. $\frac{2}{7e^5(c+1)}$

Restricted values: $d \neq 0, e \neq 0, c \neq -1, \frac{-3}{2}$