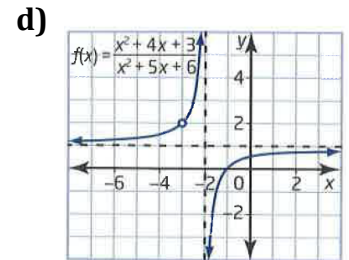
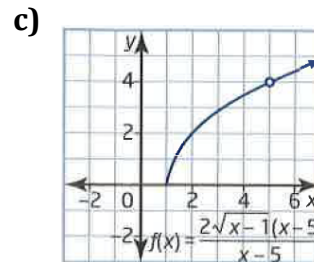
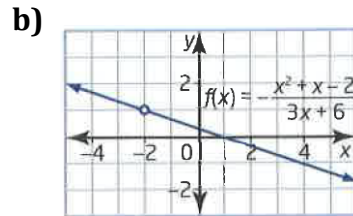
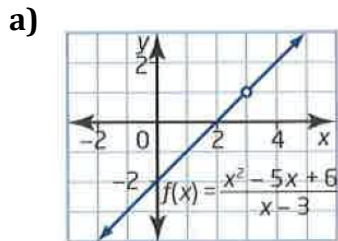


2.1/2.2 Multiplying and Dividing Rational Expressions – Worksheet

MCR3U

Jensen

1) State the restrictions for each function.



2) Simplify each expression and state all restrictions on x .

a) $\frac{x-8}{x^2-13x+40}$

b) $\frac{x^2-3x-18}{x^2+x-42}$

c) $\frac{x+8}{x^2+6x-16}$

3) Simplify and state the restrictions on the variables.

a) $\frac{14y}{11x} \times \frac{121y}{7x}$

b) $\frac{15b^3}{4b} \times \frac{20b}{30b^2}$

c) $\frac{5x}{9y} \div \frac{5x}{18y^2}$

d) $\frac{26ab}{4a} \div \frac{39a^4b^3}{12b^4}$

4) Simplify and state the restrictions on the variable.

a) $\frac{25}{x+10} \times \frac{x+10}{5}$

b) $\frac{x+5}{x-3} \times \frac{x-3}{x+7}$

$$\text{c) } \frac{x+1}{x} \div \frac{x+1}{2x}$$

$$\text{d) } \frac{x+12}{x+10} \div \frac{x+12}{x-5}$$

5) Simplify and state the restrictions on the variable.

$$\text{a) } \frac{3x^2}{12x^2+18x} \times \frac{4x+6}{3x+30}$$

$$\text{b) } \frac{4x+24}{x^2+8x} \times \frac{12x^2}{3x+18}$$

$$\text{c) } \frac{x^2+10x+21}{x+3} \times \frac{x+2}{x^2+9x+14}$$

$$\text{d) } \frac{x^2+2x-15}{x^2-9x+18} \times \frac{x-6}{x+5}$$

6) Simplify and state the restrictions on the variable

$$\text{a) } \frac{x^2+15x}{4x+24} \div \frac{3x}{3x+18}$$

$$\text{b) } \frac{6x}{8x-72} \div \frac{9x}{2x-18}$$

$$\text{c) } \frac{x^2+15x+26}{6x^2} \div \frac{x^2-3x-10}{30x^3}$$

$$\text{d) } \frac{x^2+11x+24}{x^2+2x-3} \div \frac{x-8}{x-1}$$

7) Simplify and state the restrictions on the variable

$$\text{a) } \frac{a^2-25}{a+2} \cdot \frac{a^2-4}{a^2-7a+10}$$

$$\text{b) } \frac{y^2-4y-21}{3y^2+6y} \cdot \frac{y^2+8y}{y^2+11y+24}$$

$$\text{c) } \frac{p^2-2p+1}{p+1} \div \frac{p^2-1}{p+1}$$

$$\text{d) } \frac{x^2+6x-27}{x^2+11x+18} \div \frac{x-3}{x^2+x-2}$$

Answers

1) a) $x \neq 3$ b) $x \neq -2$ c) $x \geq 1, x \neq 5$ d) $x \neq -3, x \neq -2$

2) a) $\frac{1}{x-5}, x \neq 5, x \neq 8$ b) $\frac{x+3}{x+7}, x \neq -7, x \neq 6$ c) $\frac{1}{x-2}, x \neq -8, x \neq 2$

3) a) $\frac{22y^2}{x^2}, x \neq 0$ b) $\frac{5b}{2}, b \neq 0$ c) $2y, x \neq 0, y \neq 0$ d) $\frac{2b^2}{a^4}, a \neq 0, b \neq 0$

4) a) $5, x \neq -10$ b) $\frac{x+5}{x+7}, x \neq -7, x \neq 3$ c) $2, x \neq -1, x \neq 0$ d) $\frac{x-5}{x+10}, x \neq -12, x \neq -10, x \neq 5$

5) a) $\frac{x}{3(x+10)}, x \neq -10, -\frac{3}{2}, 0$ b) $\frac{16x}{x+8}, x \neq -8, -6, 0$ c) $1, x \neq -7, -3, -2$ d) $1, x \neq -5, 3, 6$

6) a) $\frac{x+15}{4}, x \neq -6, 0$ b) $\frac{1}{6}, x \neq 0, 9$ c) $\frac{5x(x+13)}{x-5}, x \neq -2, 0, 5$ d) $\frac{x+8}{x-8}, x \neq -3, 1, 8$

7) a) $a + 5, a \neq 2, -2, 5$ b) $\frac{y-7}{3(y+2)}, y \neq -8, -3, -2, 0$ c) $\frac{p-1}{p+1}, p \neq -1, 1$ d) $x - 1, x \neq -9, -2, 1, 3$