

Section 6.2 Extra Practice

For all questions, identify any non-permissible values.

1. Simplify.

a) $\left(\frac{9x}{14y^2}\right)\left(\frac{7y^3}{3x^2}\right)$

b) $\left[\frac{5xy}{(x+y)^2}\right]\left[\frac{x(x+y)}{10}\right]$

c) $(x-3)\left(\frac{x+2}{4x-12}\right)$

d) $\left[\frac{(x+1)(x-6)}{(x-6)(x+6)}\right]\left[\frac{x(x+6)}{(1+x)}\right]$

2. Write each product in simplest form.

a) $\left(\frac{x-2}{x^2-4}\right)\left(\frac{x^2-2x-8}{x+2}\right)$

b) $\left(\frac{5y-5}{y^2+4y-5}\right)\left(\frac{y^2-25}{y^2-2y-15}\right)$

c) $\left(\frac{x^3-9x}{2x^2-x-15}\right)\left(\frac{2x^2+x-10}{x^2+x-6}\right)$

d) $\left(\frac{4x^2-25}{24x^2+52x-20}\right)\left(\frac{15x^2+65x+20}{2x^2+3x-20}\right)$

3. Divide. Express each quotient in simplest form.

a) $\left(\frac{5a}{3b}\right) \div \left(\frac{15c}{9a^2}\right)$

b) $\left(\frac{x+1}{3x+5}\right) \div \left(\frac{x+3}{3x+5}\right)$

c) $\frac{4a}{3(a-4)} \div \frac{16a^2}{9(a-4)}$

d) $\frac{2(x+3)(x-3)}{3x} \div x(x-3)$

4. What are the non-permissible values for

the quotient $\frac{x^2+8x+16}{(x-3)(x+5)} \div \frac{3x^2-3}{(x+4)}$.

Explain your answer.

5. Simplify each quotient.

a) $\frac{16a^2b}{a^2-2a} \div \frac{4ab^2}{a^2b-4b}$

b) $\frac{x-x^2}{10x+8} \div \frac{(x-1)^2}{5x^2+4x}$

c) $\frac{x^2+8x+7}{x^2-6x-7} \div \frac{x^2+7x+6}{x^2-x-42}$

d) $\frac{9y^2-1}{y+3} \div \frac{3y^2-8y-3}{9-y^2}$

6. Simplify.

a) $\left(\frac{4x^2-4}{25x^2-50x+25}\right)\left(\frac{5x^2}{x^2+x}\right) \div (x+1)$

b) $\frac{x^2-144}{12x^2} \div \left(\frac{x^2-x-6}{x^2-2x}\right)\left(\frac{x^2+4x+4}{x^2+10x-24}\right)$

c) $\frac{9x-27}{9-x^2} \div \frac{3x+27}{x^3+3x^2} \div \frac{3x^2-3x}{x^2+6x-27}$

d) $\frac{8x^3+8x^2}{4x^2+8x+4} \div \frac{2x^2-32}{3x^2-12x} \div \frac{12x^3}{x^2+5x+4}$

7. A rectangle has an area of $2x^2 - x - 1$.

a) Determine an expression for the width of the rectangle if the length is $2x + 1$.

b) State any non-permissible value(s).

c) Are there any other non-permissible values of x ? Explain.

8. a) What is the product of $\frac{x+3}{x}$ and $\frac{x+3}{x-3}$?

b) What is the quotient of $\frac{x+3}{x}$ and $\frac{x+3}{x-3}$?

c) How do the non-permissible values of the product compare with the non-permissible values of the quotient? Explain.