

12.4 Dividing Rational Expressions



Divide without using a calculator. Simplify completely.

$$\frac{3}{8} \div \frac{6}{7}$$

$$\frac{3}{8} \cdot \frac{7}{6} = \frac{\cancel{3}^1 \cdot 7}{8 \cdot \cancel{6}_2}$$

$$\boxed{\frac{7}{16}}$$

$$\frac{6}{11} \div \frac{3}{1} \quad \text{KCF}$$

$$\frac{\cancel{6}^2 \rightarrow 1}{11 \rightarrow \cancel{3}}$$

$$\boxed{\frac{2}{11}}$$

$$\frac{\cancel{5}^+}{\cancel{8}^*} \div 1\frac{2}{7}$$

$$\frac{21}{8} \div \frac{9}{7}$$

$$\frac{\cancel{21}^7 \rightarrow 7}{8 \rightarrow \cancel{9}_3}$$

$$\boxed{\frac{49}{24}}$$

12.4 Dividing Rational Expressions with work

Find each quotient.

$$\frac{6x^4}{5} \div \frac{21x}{75}$$

$$\frac{\cancel{6}x^4}{\cancel{5}} \cdot \frac{\cancel{75}^{15}}{\cancel{21}^7}$$

$$\frac{2 \cdot 15x^{4-1}}{7}$$

$$\boxed{\frac{30x^3}{7}}$$

$$\frac{3m+12}{m+5} \div \frac{m+4}{m-2}$$

$$\frac{3m+12}{m+5} \cdot \frac{m-2}{m+4}$$

$$\frac{3(\cancel{m+4})}{(m+5)} \cdot \frac{(m-2)}{\cancel{(m+4)}}$$

$$\boxed{\frac{3(m-2)}{(m+5)}}$$

$$\frac{12x-36}{x-7} \div \frac{(x-3)}{1}$$

$$\frac{12x-36}{x-7} \cdot \frac{1}{(x-3)}$$

$$\frac{12(\cancel{x-3})}{(x-7)} \cdot \frac{1}{\cancel{(x-3)}}$$

$$\boxed{\frac{12}{(x-7)}}$$

$$\frac{3x+12}{4x-18} \div \frac{2x+8}{x+4}$$

$$\frac{3x+12}{4x-18} \cdot \frac{x+4}{2x+8}$$

$$\frac{3(\cancel{x+4})}{2(2x-9)} \cdot \frac{\cancel{(x+4)}^1}{2(\cancel{x+4})}$$

$$\boxed{\frac{3}{4(2x-9)}}$$

12.4 Dividing Rational Expressions with work

$$\frac{q^2 - 11q - 26}{7} \div \frac{q - 13}{q + 7}$$

$$\frac{q^2 - 11q - 26}{7} \cdot \frac{q + 7}{q - 13}$$

$$\frac{(q - 13)(q + 2)}{7} \cdot \frac{(q + 7)}{(q - 13)}$$

$$\boxed{\frac{(q + 2)(q + 7)}{7}}$$

Grab a slip and solve this extra practice problem before grabbing your worksheet.

$$\frac{x^2 - 3x - 40}{x^2 + 8x - 20} \div \frac{x^2 + 13x + 40}{x^2 + 12x + 20}$$

Worksheet:

- A) 2, 4, 6, 9, 12, 15
- B) 1 - 15(o) not 7
- C) 1, 3, 5, 13, 15