

7.1 additional exercises

Are the following simplifications correct? Yes or no? Once done check the answer sheet following and make sure you understand when you can divide out factors and when you can not.

1. $\frac{4x}{7x} = \frac{4}{7}$

2. $\frac{x+4}{x+7} = \frac{4}{7}$

3. $\frac{(x+5)(x+4)}{(x+5)(x+3)} = \frac{x+4}{x+3}$

4. $\frac{(x+5)(x+4)+3}{(x+5)(x+3)} = \frac{x+7}{x+3}$

5. $\frac{x(x+5)+4(x+5)}{(x+5)(x+3)} = \frac{(x+5)(x+4)}{(x+5)(x+3)} = \frac{x+4}{x+3}$

6. $\frac{x+2}{x+3} = \frac{2}{3}$

7. $\frac{5x+35}{5} = \frac{5(x+7)}{5} = x+7$

List all numbers for which the rational expression undefined.

1) $\frac{d-8}{6-d}$

2) $\frac{d-4}{2-d}$

3) $\frac{d-8}{3-d}$

4) $\frac{d-8}{8-d}$

5) $\frac{d-3}{4-d}$

6) $\frac{d-6}{d+4}$

7.1 additional exercise answers

$$1. \quad \frac{4x}{7x} = \frac{4}{7}$$

Correct; x is a factor (multiplied) of the entire numerator and denominator

$$2. \quad \frac{x+4}{x+7} = \frac{4}{7}$$

Incorrect; x is not multiplied by the rest of the numerator or denominator therefore x is not a factor of either.

$$3. \quad \frac{(x+5)(x+4)}{(x+5)(x+3)} = \frac{x+4}{x+3}$$

Correct; x+5 is a factor (multiplied) of the entire numerator and denominator

$$4. \quad \frac{(x+5)(x+4)+3}{(x+5)(x+3)} = \frac{x+7}{x+3}$$

Incorrect; x+5 is a factor of the denominator but x+5 is multiplied by x+4 but not by 3 in the numerator, therefore x+5 is not a factor of the entire numerator

$$5. \quad \frac{x(x+5)+4(x+5)}{(x+5)(x+3)} = \frac{(x+5)(x+4)}{(x+5)(x+3)} = \frac{x+4}{x+3}$$

Correct

$$6. \quad \frac{x+2}{x+3} = \frac{2}{3}$$

Incorrect; x is not multiplied by the rest of the numerator or denominator therefore x is not a factor of either.

$$7. \quad \frac{5x+35}{5} = \frac{5(x+7)}{5} = x+7$$

Correct

1. 6
2. 2
3. 3
4. 8
5. 4
6. -4