

MA90 Exercises for section 7.1 Reducing Rational Expressions**Multiple Choice**

Identify the choice that best completes the statement or answers the question.

- _____ 1. Reduce the following rational expression to lowest terms, if possible. Also, specify any restrictions on the variable.

$$\frac{-8}{2x-6}$$

- a. $\frac{4}{x+3}, x \neq -3$
- b. $\frac{4}{x-6}, x \neq 6$
- c. $\frac{-4}{x-6}, x \neq 6$
- d. $\frac{-4}{x-3}, x \neq 3$
- e. $\frac{4}{x-3}, x \neq 3$

- _____ 2. Reduce the following rational expression to lowest terms, if possible. Also, specify any restrictions on the variable.

$$\frac{2x-6}{x-3}$$

- a. 2, $x \neq 3$
- b. $\frac{2}{x-3}, x \neq 3$
- c. $\frac{3}{x-2}, x \neq 3$
- d. 3, $x \neq 2$
- e. -2, $x \neq -3$

Name: _____

ID: A

- _____ 3. Reduce the following rational expression to lowest terms, if possible. Also, specify any restrictions on the variable.

$$\frac{x^2 - 10x + 25}{x - 5}$$

- a. $\frac{x+5}{x-5}, x \neq 5$
- b. $x - 10, x \neq -5$
- c. $x + 5, x \neq -5$
- d. $x - 5, x \neq 5$
- e. $\frac{1}{x-5}, x \neq 5$

Short Answer

1. Write the ratio as a fraction in lowest terms.

6 to 4

2. Write the ratio as a fraction in lowest terms.

2 to 64

3. Reduce the following rational expression to lowest terms, if possible. Also, indicate any restrictions to the variable.

$$\frac{2x^2 + x - 6}{x^4 - 16}$$

4. Reduce the following rational expression to lowest terms, if possible. Also, indicate any restrictions to the variable.

$$\frac{3x + 12}{3x^2 + 33x + 84}$$

5. Reduce the following rational expression to lowest terms, if possible.

$$\frac{8m^3 - 8m^2 - 48m}{m^2 - 4m + 3}$$

6. Reduce the following rational expression to lowest terms, if possible.

$$\frac{56x^3 - 36x^2 - 72x}{6x^2 - 5x - 6}$$

7. To reduce the following rational expression to lowest terms, you will have to use factoring by grouping. Be sure to factor each numerator and denominator completely before dividing out any common factors. (Remember, factoring by grouping takes two steps.)

$$\frac{xy + 3x + 2y + 6}{xy + 3x + 5y + 15}$$

8. To reduce the following rational expression to lowest terms, you will have to use factoring by grouping. Be sure to factor each numerator and denominator completely before dividing out any common factors. (Remember, factoring by grouping takes two steps.)

$$\frac{x^2 - 7x + ax - 7a}{x^2 - 4x + ax - 4a}$$

**MA90 Exercises for section 7.1 Reducing Rational Expressions
Answer Section**

MULTIPLE CHOICE

1. ANS: D PTS: 1
 2. ANS: A PTS: 1
 3. ANS: D PTS: 1

SHORT ANSWER

1. ANS:

$$\frac{3}{2}$$

PTS: 1

2. ANS:

$$\frac{1}{32}$$

PTS: 1

3. ANS:

$$\frac{2x-3}{(x-2)(x^2+4)}, x \neq 2, -2$$

PTS: 1

4. ANS:

$$\frac{1}{x+7}, x \neq -4, -7$$

PTS: 1

5. ANS:

$$\frac{8m(m+2)}{m-1}$$

PTS: 1

6. ANS:

$$\frac{4x(7x+6)}{3x+2}$$

PTS: 1

7. ANS:
$$\frac{x+2}{x+5}$$

PTS: 1

8. ANS:
$$\frac{x-7}{x-4}$$

PTS: 1