

Math 0408 – Intermediate Algebra Rational Expressions 1

Simplify each of the following completely.

1.
$$\frac{9x^4y^4 + 18x^3y^4 - 27x^2y^4}{-9xy^3}$$

2.
$$\frac{2a^2 - 3a - 9}{2a + 3}$$

3.
$$\frac{y^4 - 16}{y - 2}$$

4.
$$\frac{x + 5}{x^2 - 25} \cdot \frac{x - 5}{x^2 - 10x + 25}$$

5.
$$\frac{3y^2 - 3y}{3y - 12} \cdot \frac{y^2 - 2y - 8}{y^2 + 3y + 2}$$

6.
$$\frac{x^2 - y^2}{x^2 - 2xy + y^2} \div \frac{x^3 + y^3}{x^3 - x^2y}$$

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$$7. \frac{2x^3 + 10x^2 - 8x - 40}{x^3 + 4x^2 - 9x - 36} \cdot \frac{x^2 + x - 12}{2x^2 + 14x + 20}$$

$$8. \frac{a^2 - 8a + 15}{a + 4} \cdot \frac{a + 2}{a^2 - 5a + 6} \div \frac{a^2 - 3a - 10}{a^2 + 2a - 8}$$

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Answers

1. $xy(3 - 2x - x^2)$	2. $a - 3$
3. $y^3 + 2y^2 + 4y + 8$	4. $\frac{1}{(x-5)^2}$
5. $\frac{y(y-1)}{(y+1)}$	6. $\frac{x^2}{(x^2-xy+y^2)}$
7. $\frac{x-2}{x+3}$	8. 1

