

Simplifying Rational Expressions

Simplify each expression and state the excluded values.

1) $\frac{p^2 - 19p + 90}{7p^2 - 63p}$

2) $\frac{16x^2 - 24x}{16x^2 + 64x}$

3) $\frac{x^2 - 2x - 3}{x^2 - 3x - 4}$

4) $\frac{x^2 - 5x - 36}{x^2 + 5x + 4}$

5) $\frac{n^2 - 4n + 4}{n^2 - 10n + 16}$

6) $\frac{p^2 + 17p + 72}{6p + 48}$

7) $\frac{4n^2 - 32n}{7n^2 - 56n}$

8) $\frac{r^2 + r - 20}{r^2 - r - 12}$

Simplify each expression.

$$9) \frac{2n-10}{8n} \cdot \frac{6n}{n-5}$$

$$10) \frac{5p}{25p^2+10p} \cdot \frac{50p^2+20p}{5p}$$

$$11) \frac{3n}{n+9} \cdot \frac{6n^2+54n}{6n}$$

$$12) \frac{x^2+8x+12}{2x^2+4x} \cdot \frac{2x}{x+3}$$

$$13) \frac{9}{p^2+11p+30} \div \frac{10p}{10p^2+60p}$$

$$14) \frac{k-4}{k^2-9k+8} \div \frac{1}{k-8}$$

$$15) \frac{8x}{2x+6} \div \frac{1}{x+3}$$

$$16) \frac{1}{n-5} \div \frac{9n^3+72n^2}{8n-40}$$

Answers to Simplifying Rational Expressions (ID: 1)

1) $\frac{p-10}{7p}; \{0, 9\}$

2) $\frac{2x-3}{2(x+4)}; \{0, -4\}$

3) $\frac{x-3}{x-4}; \{-1, 4\}$

4) $\frac{x-9}{x+1}; \{-1, -4\}$

5) $\frac{n-2}{n-8}; \{2, 8\}$

6) $\frac{p+9}{6}; \{-8\}$

7) $\frac{4}{7}; \{0, 8\}$

8) $\frac{r+5}{r+3}; \{-3, 4\}$

9) $\frac{3}{2}$

10) 2

11) $3n$

12) $\frac{x+6}{x+3}$

13) $\frac{9}{p+5}$

14) $\frac{k-4}{k-1}$

15) $4x$

16) $\frac{8}{9n^2(n+8)}$