

Unit 3: Rational Simplify & Solving Test

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Date_____ Period____

Simplify each and state the excluded values.

1) $\frac{x^2 + 12x + 32}{x^2 + 3x - 4}$

2) $\frac{7v - 49}{v^2 + 3v - 70}$

A) $\frac{x - 8}{x - 7}; \{-3, 7\}$

A) 1 ; $\{-8, 10\}$

B) $\frac{2(x - 5)}{3x - 10}; \left\{0, \frac{10}{3}\right\}$

B) $\frac{7}{v + 10}; \{-10, 7\}$

C) $\frac{x + 8}{x - 1}; \{-4, 1\}$

C) $\frac{v - 1}{v + 6}; \{-6, 4\}$

D) $\frac{x - 7}{x - 8}; \{-3, 8\}$

D) $\frac{v + 4}{v + 2}; \{-2, -4\}$

Simplify each expression.

3)
$$\frac{\frac{2}{6a^2 - 6a}}{\frac{a + 4}{a^2 + 3a - 4}}$$

4)
$$\frac{\frac{3x^2}{9x^3 + 15x^2}}{\frac{x - 3}{15x + 25}}$$

A) $\frac{a + 2}{3a^2}$ B) $\frac{2}{a + 6}$

A) 1 B) $\frac{x + 5}{3x}$

C) $\frac{a - 6}{4}$ D) $\frac{1}{3a}$

C) $\frac{5}{x - 3}$ D) $\frac{8}{3}$

5) $\frac{7k^3 + 28k^2}{7k^2} \cdot \frac{4k}{k + 4}$

6) $\frac{2x - 6}{12x - 36} \cdot \frac{10x - 40}{10x - 30}$

A) $4k$ B) $\frac{4k}{k - 8}$

A) $\frac{x - 4}{6(x - 3)}$ B) $\frac{28x^2}{9}$

C) $\frac{k - 5}{k - 4}$ D) $\frac{k + 8}{2k^2}$

C) $2x(x - 6)$ D) $\frac{x + 8}{x - 7}$

Solve each equation. Remember to check for extraneous solutions.

$$7) \frac{5r - 15}{6r} = \frac{2}{3} + \frac{1}{r}$$

- A) $\{-3\}$ B) $\{21\}$
C) $\{3\}$ D) $\left\{3, \frac{1}{4}\right\}$

$$8) \frac{n+3}{3} + \frac{5}{n} = \frac{n^2 - 3n - 4}{3n}$$

$$9) \frac{2x+6}{x} = \frac{1}{2} + \frac{x^2 + 8x + 15}{x}$$

$$10) \frac{1}{4} = \frac{1}{b} + \frac{6b^2 + 13b + 2}{4b}$$

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