

Simplify Rational Expressions

Name _____

© 2017 Kuta Software LLC. All rights reserved.

Date _____

Simplify each and state the excluded values.

1) $\frac{63m^2 + 27m}{18m^3 - 27m^2 - 45m}$

2) $\frac{3b^2 + 33b + 84}{3b + 21}$

3) $\frac{2k^2 + 18k}{6k^2 + 66k + 108}$

4) $\frac{x^3 - 6x^2 - 7x}{8x - 56}$

5) $\frac{2k^3 - 24k^2 + 40k}{k^2 + 6k - 16}$

6) $\frac{14a^2 - 77a + 63}{35a^2 - 14a - 112}$

7) $\frac{8x^3 - 56x^2 + 48x}{x^3 - 2x^2 - 36x + 72}$

8) $\frac{2a^2 - 6a + 4}{3a^2 - 24a + 21}$

9) $\frac{50r^3 + 130r^2 + 80r}{30r^3 + 120r^2 + 120r}$

10) $\frac{56x^2 + 48x}{16x^3 + 64x^2 + 64x}$

$$11) \frac{2x^2 - 18x - 20}{7x^2 - 70x}$$

$$12) \frac{5n^2 + 35n + 30}{7n^2 + 49n + 42}$$

$$13) \frac{2p^3 - 14p^2 + 12p}{p^3 - 2p^2 - p + 2}$$

$$14) \frac{2x^3 + 30x^2 + 112x}{x^2 + 17x + 72}$$

$$15) \frac{n^3 + 12n^2 + 20n}{n^2 + 17n + 70}$$

$$16) \frac{14x^2 + 10x - 4}{14x^2 + 14x - 28}$$

$$17) \frac{n^3 - 8n^2 + 16n}{2n^3 - 2n^2 - 24n}$$

$$18) \frac{x^2 - 9x - 10}{9x^3 - 108x^2 + 180x}$$

$$19) \frac{v^3 + 19v^2 + 90v}{2v^3 + 34v^2 + 144v}$$

$$20) \frac{6r + 9}{9r^2 - 3r - 30}$$

Answers to Simplify Rational Expressions

- 1) $\frac{7m+3}{(2m-5)(m+1)}; \left\{0, \frac{5}{2}, -1\right\}$ 2) $b+4; \{-7\}$ 3) $\frac{k}{3(k+2)}; \{-9, -2\}$
- 4) $\frac{x(x+1)}{8}; \{7\}$ 5) $\frac{2k(k-10)}{k+8}; \{2, -8\}$ 6) $\frac{(a-1)(2a-9)}{(a-2)(5a+8)}; \left\{2, -\frac{8}{5}\right\}$
- 7) $\frac{8x(x-1)}{(x-2)(x+6)}; \{6, 2, -6\}$ 8) $\frac{2(a-2)}{3(a-7)}; \{7, 1\}$ 9) $\frac{(r+1)(5r+8)}{3(r+2)^2}; \{0, -2\}$
- 10) $\frac{7x+6}{2(x+2)^2}; \{0, -2\}$ 11) $\frac{2(x+1)}{7x}; \{0, 10\}$ 12) $\frac{5}{7}; \{-6, -1\}$
- 13) $\frac{2p(p-6)}{(p-2)(p+1)}; \{2, 1, -1\}$ 14) $\frac{2x(x+7)}{x+9}; \{-9, -8\}$ 15) $\frac{n(n+2)}{n+7}; \{-10, -7\}$
- 16) $\frac{(7x-2)(x+1)}{7(x-1)(x+2)}; \{1, -2\}$ 17) $\frac{n-4}{2(n+3)}; \{0, 4, -3\}$ 18) $\frac{x+1}{9x(x-2)}; \{0, 10, 2\}$
- 19) $\frac{v+10}{2(v+8)}; \{0, -9, -8\}$ 20) $\frac{2r+3}{(r-2)(3r+5)}; \left\{2, -\frac{5}{3}\right\}$

