

Simplifying and Multiplying Rationals

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Simplify each and state the excluded values.

1) $\frac{n-7}{6n-42}$

2) $\frac{30}{18k-36}$

3) $\frac{35x^2}{49x^2-35x}$

4) $\frac{27}{63m-36}$

5) $\frac{5x-30}{x-6}$

6) $\frac{n+9}{n^2-81}$

$$7) \frac{42}{12a + 48}$$

$$8) \frac{p - 7}{p^2 - 12p + 35}$$

$$9) \frac{50}{20x + 30}$$

$$10) \frac{8x + 16}{12}$$

$$11) \frac{b^2 + b - 6}{b^2 - 6b + 8}$$

$$12) \frac{12n - 48}{30n + 24}$$

$$13) \frac{27r - 36}{45r + 18}$$

$$14) \frac{x^2 - x - 6}{x^2 + x - 12}$$

$$15) \frac{8b^4}{3b} \cdot \frac{4b}{6b}$$

$$16) \frac{4}{2x^2} \cdot \frac{9}{10x}$$

$$17) \frac{9v^2}{9v} \cdot \frac{8}{3}$$

$$18) \frac{5n}{5n^2} \cdot \frac{6n}{3}$$

$$19) \frac{9-x}{6x^2(x-9)} \cdot \frac{6x^2(x-2)}{x+9}$$

$$20) \frac{(n+5)(n-4)}{2(n-6)} \cdot \frac{n-6}{n-4}$$

$$21) \frac{8x+40}{8} \cdot \frac{9}{x^2+3x-10}$$

$$22) \frac{10a-45}{20a-90} \cdot \frac{2a}{5}$$

$$23) \frac{3}{x^2 - x - 30} \cdot \frac{x^2 + 11x + 30}{x + 6}$$

$$24) \frac{m^2 + 7m + 10}{m - 5} \cdot \frac{9}{m^2 + 7m + 10}$$

$$25) \frac{n^2 - 5n - 24}{5n} \cdot \frac{5n}{n + 3}$$

$$26) \frac{1}{k - 7} \cdot \frac{4k^2 + 16k}{4k}$$

Answers to Simplifying and Multiplying Rationals (ID: 1)

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|--|--|---|---|
| 1) $\frac{1}{6}; \{7\}$ | 2) $\frac{5}{3(k-2)}; \{2\}$ | 3) $\frac{5x}{7x-5}; \left\{0, \frac{5}{7}\right\}$ | 4) $\frac{3}{7m-4}; \left\{\frac{4}{7}\right\}$ |
| 5) $5; \{6\}$ | 6) $\frac{1}{n-9}; \{9, -9\}$ | 7) $\frac{7}{2(a+4)}; \{-4\}$ | 8) $\frac{1}{p-5}; \{7, 5\}$ |
| 9) $\frac{5}{2x+3}; \left\{-\frac{3}{2}\right\}$ | 10) $\frac{2(x+2)}{3};$ No excluded values. | | 11) $\frac{b+3}{b-4}; \{4, 2\}$ |
| 12) $\frac{2(n-4)}{5n+4}; \left\{-\frac{4}{5}\right\}$ | 13) $\frac{3r-4}{5r+2}; \left\{-\frac{2}{5}\right\}$ | 14) $\frac{x+2}{x+4}; \{3, -4\}$ | 15) $\frac{16b^3}{9}; \{0\}$ |
| 16) $\frac{9}{5x^3}; \{0\}$ | 17) $\frac{8v}{3}; \{0\}$ | 18) $2; \{0\}$ | 19) $-\frac{(x-2)}{x+9}; \{0, 9, -9\}$ |
| 20) $\frac{n+5}{2}; \{6, 4\}$ | 21) $\frac{9}{x-2}; \{2, -5\}$ | 22) $\frac{a}{5}; \left\{\frac{9}{2}\right\}$ | 23) $\frac{3}{x-6}; \{6, -5, -6\}$ |
| 24) $\frac{9}{m-5}; \{5, -5, -2\}$ | 25) $n-8; \{0, -3\}$ | 26) $\frac{k+4}{k-7}; \{7, 0\}$ | |