

Assignment

Date _____ Period _____

Simplify. Your answer should contain only positive exponents.

1)
$$\frac{(2m^{-4}n^{-1}p^4)^{-5}}{-mn^2p^{-5} \cdot -p^2}$$

2)
$$\frac{(2a^2b^5)^6 \cdot a^5b^4c^{-3}}{2bc}$$

3)
$$\left(\frac{j^{-5}k^{-2} \cdot j^{-5}k^4}{(h^{-1}k^6 \cdot -j^{-2}k^2)^{-4}} \right)^5$$

4)
$$\left(-\frac{2m^{-1}p^{-5}q^{-4} \cdot (2m^3p^{-3})^2}{pm^3q^4} \right)^{-3}$$

5)
$$\left(\frac{2a^{-1}c^4}{-a^2b^2c^{-5} \cdot a^4} \right)^{-5}$$

6)
$$\frac{2x^4y^{-3} \cdot (-2x^3y^4z^3)^2}{-2yx^{-6}z^{-6}}$$

7)
$$-\frac{x^{-1}}{(-2x^2y^3z^2 \cdot y^5z^5)^4}$$

8)
$$\frac{(2rp^5q^3)^{-3}}{-2q^3r^6 \cdot 2p^6q^{-5}r^5}$$

$$9) \frac{(x^4 y^3 z^{-5})^2}{2xy^{-6} \cdot 2x^{-5} y^3 z^6}$$

$$10) \frac{(2m^4 p^2 q^{-4} \cdot -2m^2 p^{-6} q^2)^4}{-m^2 p^5 q^3}$$

$$11) \frac{2x^4 y^5 z^2 \cdot -2y^3 z^{-6}}{(2x^4 z^2)^4}$$

$$12) \left(\frac{-a^5 b^4 c^{-3} \cdot -2a^6 b^{-4}}{-a^5} \right)^{-6}$$

$$13) \frac{-2y^4 z^{-2}}{-x \cdot (-x^{-1} z^4)^3}$$

$$14) \left(\frac{-x^3 y^3 z^4 \cdot x^{-5}}{-x^{-3} z^{-6} \cdot 2x^3 y^4 z^{-5}} \right)^{-4}$$

$$15) \frac{h^4 j^{-3} k^2 \cdot -h^{-3} j^{-6} k^3}{(-h^4 j^{-2} k^3)^{-2}}$$

$$16) \left(\frac{a^{-2} b^4 c^2}{2ba^{-2} c^4 \cdot 2ab^{-1} c^{-4}} \right)^6$$

$$17) \frac{(-y^3z^4)^2}{2zx^3y^3 \cdot y^{-2}z^5}$$

$$18) \frac{2ba^3c^5}{(-c^3 \cdot -a^3b^{-2}c^3)^3}$$

$$19) \frac{(-h^2 \cdot -kh^{-5}j^6)^2}{2h^5j^{-3}k^{-3}}$$

$$20) -\frac{2zx^{-1}y^4}{(2x^5z^3 \cdot x^{-3}y^6z^{-1})^{-1}}$$

Simplify each and state the excluded values.

$$21) \frac{4a^2 + 8a}{a + 5}$$

$$22) \frac{5r^2 - 22r + 21}{4r^2 - 20r + 24}$$

$$23) \frac{2r^2 + 13r - 7}{5r^2 + 42r + 49}$$

$$24) \frac{3r^4 + 9r^3 - 12r^2}{8r^2 + 56r - 144}$$

25)
$$\frac{10r^3 - 116r^2 + 160r}{-14r^3 + 160r^2 - 200r}$$

26)
$$\frac{25x - 50}{35x^2 - 100x + 60}$$

27)
$$\frac{6k^2 - 39k + 60}{7k^2 - 18k - 40}$$

28)
$$\frac{3r^2 + 12r - 15}{2r^2 + 8r - 10}$$

29)
$$\frac{5x^3 + 14x^2 + 9x}{7x^2 + 10x + 3}$$

30)
$$\frac{6r^2 - 63r + 81}{3r^2 - 35r + 72}$$

Solve each equation. Remember to check for extraneous solutions.

31)
$$\frac{1}{v^2 - 3v} + \frac{1}{v} = \frac{v^2 - 8v + 12}{v^2 - 3v}$$

32)
$$\frac{1}{2x^2 + 6x} = \frac{x - 5}{2x} - \frac{x - 6}{x + 3}$$

$$33) \frac{1}{b+7} = \frac{3b^2 + 12b - 15}{b^2 + 7b} + \frac{1}{b^2 + 7b}$$

$$34) \frac{1}{x^3 + 6x^2} = \frac{1}{x^2} + \frac{3x^2 + 21x + 30}{x^3 + 6x^2}$$

$$35) \frac{8}{n^2 - 6n} = 1 + \frac{1}{n^2 - 6n}$$

$$36) \frac{1}{3} - \frac{x-1}{3x+18} = \frac{1}{3x^2 + 18x}$$

$$37) 1 = \frac{x+4}{x} + \frac{5x+30}{2x^2-x}$$

$$38) \frac{1}{v^2 - 5v} + \frac{v^2 - 7v + 6}{v^2 - 5v} = \frac{v-6}{v}$$

$$39) \frac{n^2 - 6n + 5}{n^3 + 4n^2} = \frac{1}{n} - \frac{1}{n^3 + 4n^2}$$

$$40) \frac{x-1}{x^2-4x} - \frac{x^2+4x+3}{x^2-4x} = \frac{1}{x-4}$$

Answers to Assignment (ID: 1)

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|--|---|---|---------------------------------------|
| 1) $\frac{m^{19}n^3}{32p^{17}}$ | 2) $\frac{32a^{17}b^{33}}{c^4}$ | 3) $\frac{k^{170}}{j^{90}h^{20}}$ | 4) $-\frac{p^{36}q^{24}}{512m^6}$ |
| 5) $-\frac{a^{35}b^{10}}{32c^{45}}$ | 6) $-4x^{16}z^{12}y^4$ | 7) $-\frac{1}{16x^9y^{32}z^{28}}$ | 8) $-\frac{1}{32r^{14}p^{21}q^7}$ |
| 9) $\frac{x^{12}y^9}{4z^{16}}$ | 10) $-\frac{256m^{22}}{q^{11}p^{21}}$ | 11) $-\frac{y^8}{4z^{12}x^{12}}$ | 12) $\frac{c^{18}}{64a^{36}}$ |
| 13) $-\frac{2y^4x^2}{z^{14}}$ | 14) $\frac{16x^8y^4}{z^{60}}$ | 15) $-\frac{h^9k^{11}}{j^{13}}$ | 16) $\frac{b^{24}c^{12}}{4096a^6}$ |
| 17) $\frac{y^5z^2}{2x^3}$ | 18) $\frac{2b^7}{a^6c^{13}}$ | 19) $\frac{k^5j^{15}}{2h^{11}}$ | 20) $-4z^3y^{10}x$ |
| 21) $\frac{4a(a+2)}{a+5}; \{-5\}$ | 22) $\frac{5r-7}{4(r-2)}; \{3, 2\}$ | 23) $\frac{2r-1}{5r+7}; \left\{-7, -\frac{7}{5}\right\}$ | |
| 24) $\frac{3r^2(r-1)(r+4)}{8(r-2)(r+9)}; \{2, -9\}$ | 25) $\frac{5r-8}{-7r+10}; \left\{0, 10, \frac{10}{7}\right\}$ | 26) $\frac{5}{7x-6}; \left\{2, \frac{6}{7}\right\}$ | |
| 27) $\frac{3(2k-5)}{7k+10}; \left\{4, -\frac{10}{7}\right\}$ | 28) $\frac{3}{2}; \{1, -5\}$ | 29) $\frac{x(5x+9)}{7x+3}; \left\{-1, -\frac{3}{7}\right\}$ | |
| 30) $\frac{3(2r-3)}{3r-8}; \left\{9, \frac{8}{3}\right\}$ | 31) $\{7, 2\}$ | 32) $\{8, 2\}$ | 33) $\left\{1, -\frac{14}{3}\right\}$ |
| 34) $\left\{-5, -\frac{7}{3}\right\}$ | 35) $\{7, -1\}$ | 36) $\left\{\frac{1}{7}\right\}$ | 37) $\{-2\}$ |
| 38) $\left\{\frac{23}{4}\right\}$ | 39) $\left\{\frac{3}{5}\right\}$ | 40) $\{-2\}$ | |