

Fractions with Variables & Exponents- Division

(Some Negatives)

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To divide by a fraction you need:

- All fractions
- Flip the fraction by which you are dividing
(Take the reciprocal of the divisor.)
- Change division to **multiplication**, and **now** you can:
- **Reduce if possible**
- **Multiply straight across**

$$1) \frac{5}{6x} \div \frac{3}{10x^2}$$
$$\frac{5}{\cancel{3}6x} \cdot \frac{\cancel{5}10x^2}{3} = \frac{25x}{9}$$

$$3) \frac{9x}{10y^2} \div \frac{27x^3}{4y^3}$$
$$\frac{\textcircled{1}9x}{\cancel{5}10y^2} \cdot \frac{\textcircled{2}4y^3}{\cancel{3}27x^3} = \frac{2y}{15x^2}$$

$$2) \frac{20c^3}{1} \div \frac{4c}{b}$$
$$\frac{\cancel{5}20c^3}{1} \cdot \frac{b}{\cancel{1}4c} = \frac{5c^2b}{1} = \frac{5c^2b}{1}$$

$$4) \frac{x}{y^3} \div -\frac{5x}{1}$$
$$\frac{\cancel{x}}{y^3} \cdot -\frac{1}{\cancel{5}\cancel{x}} = -\frac{1}{5y^3}$$

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$$5) -\frac{k^3}{t^2} \div \frac{k^3}{t}$$

$$-\frac{\cancel{k^3}}{t^2} \cdot \frac{\cancel{t}}{\cancel{k^3}} = -\frac{1}{t}$$

$$7) -\frac{k^2}{3} \div -\frac{12k^2}{1}$$

$$-\frac{\cancel{k^2}}{3} \cdot -\frac{1}{\cancel{12k^2}} = \frac{1}{36}$$

$$6) \frac{12y^{53}}{13y^2} \div \frac{3y^{87}}{26y}$$

$$\frac{4\cancel{12}y^{\cancel{53}}}{\cancel{1}3} \cdot \frac{\cancel{26}^2}{\cancel{3}y^{\cancel{87}}4} = \frac{8}{y^4}$$

$$8) \frac{9r^3x^2}{20r^2x^{75}} \div \frac{36r^5x^3}{5rx^{107}}$$

$$\frac{\cancel{1}9r}{4\cancel{20}x^5} \cdot \frac{\cancel{1}5x^{\cancel{107}}2}{4\cancel{36}r^4\cancel{3}} = \frac{x^2}{16r^3}$$