Simple Rules for Signed Numbers

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MULTIPLICATION

(#) × (#)

DIVISION

(#) ÷ (#)

There are two simple rules for multiplication and division of signed numbers:

Rule 1) When numbers with different signs are multiplied or divided, the answer will have a minus sign.

Example: **(–5)(2) = –10** **We multiplied –5 times + 2.**
The signs are different, so the answer is negative.

We abbreviate rule #1 this way:

DIFFERENT SIGNS:
(–) (+) = (–) or (+) (–) = (–)

Rule 2) When numbers with the same signs are multiplied or divided, the answer will have a plus sign.

Example: **(–12) ÷ (–4) = +3** **We divided –12 by –4.**
The signs are the same, so the answer is positive.

We abbreviate rule #2 this way:

SAME SIGNS:
(–)(–) = (+) or (+)(+) = (+)

More examples on next page.

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Multiplication

DIFFERENT SIGNS	SAME SIGNS
(+)(–) = (–)	(+)(+) = (+)
(–)(+) = (–)	(–)(–) = (+)

Division

DIFFERENT SIGNS	SAME SIGNS
(+) ÷ (–) = (–)	(+) ÷ (+) = (+)
(–) ÷ (+) = (–)	(–) ÷ (–) = (+)

Note: Fractions are a form of division.

Examples:

(2) (– 8) = – 16

(– 4) (0.6) = – 2.4

–3x (– 5) = 15x

–12y (– 4x) = 48xy

–3(m – n) = –3m + 3n

0.2s (t – 4) = 0.2st – 0.8s

$2(x^2 – x + 3) = 2x^2 – 2x + 6$

(– 9) (– 3) = 27

(10) (1) = 10

14r (2) = 28r

–y (–3.2) = 3.2y

$5z^2$ (– 7) = $– 35z^2$

2x (20y) = 40xy

$–w (–3x^3 – 5w) = 3wx^3 + 5w^2$

Examples:

35 ÷ (– 7) = – 5

$– 21z^2 ÷ (– 3) = 7z^2$

$\frac{-3x}{-2x} = \frac{3}{2}$

4.2 ÷ (–0.6) = – 7

$\frac{32x - 24y}{4}$ = 8x – 6y

$\frac{-xy(z+1)}{-(z+1)} = xy$

$\frac{-5}{-10} = \frac{1}{2}$

32 ÷ (– 8) = – 4

$\frac{-54}{9}$ = – 6

– 6.3 ÷ 21 = –0.3

$\frac{2(a-b)}{-(a-b)}$ = – 2

$\frac{-44x^2}{-11x}$ = 4x