

SLO

Know how to multiply and
divide negative numbers



<http://www.khanacademy.org/math/arith-metic/absolute-value/mult-div-negative/v/multiplying-positive-and-negative-numbers> (Khan: multiply negative numbers video)

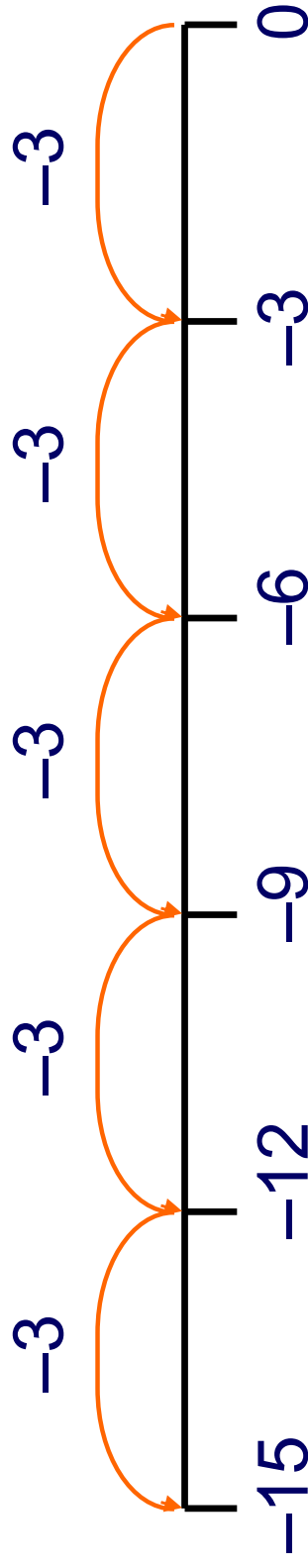
Multiplying integers



PresenterMedia

5×-3 this can be thought of as 5 lots of -3

$$-3 + -3 + -3 + -3 + -3 = -15$$

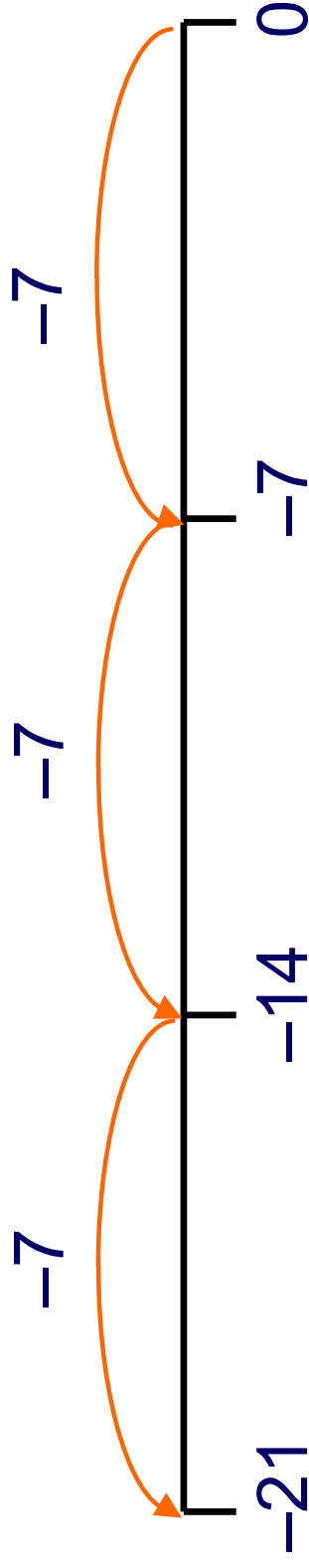


$$5 \times -3 = -15$$

A positive number \times a negative number = a negative number

Multiplying negative numbers

$$-7 \times 3 = 3 \times -7 = -21$$

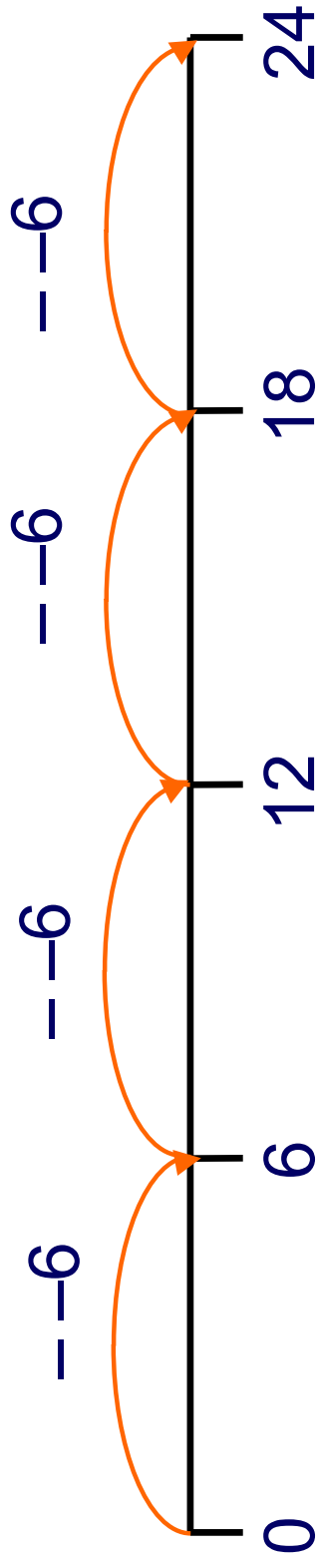


A negative number \times a positive number = a negative number

Multiplying negative numbers



$$-4 \times -6 = 24$$



A negative number \times a negative number = a positive number

Rules for multiplying and dividing

When multiplying negative numbers remember:

\oplus	\times	\oplus	$=$	\oplus
\oplus	\times	\ominus	$=$	\ominus
\ominus	\times	\oplus	$=$	\ominus
\ominus	\times	\ominus	$=$	\oplus

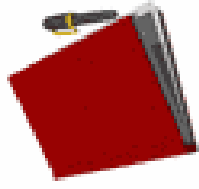


When we are dividing negative numbers similar rules apply:

\oplus	\div	\oplus	$=$	\oplus
\oplus	\div	\ominus	$=$	\ominus
\ominus	\div	\oplus	$=$	\ominus
\ominus	\div	\ominus	$=$	\oplus



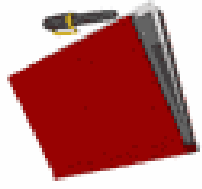
Copy into
your
notes



Multiplying/Dividing Integers

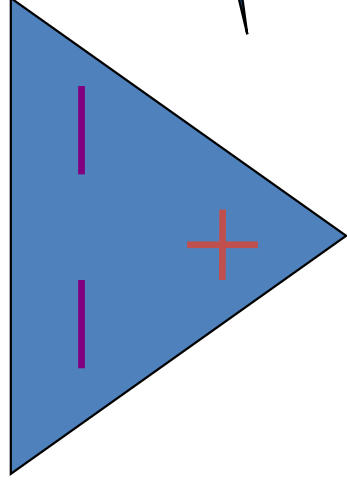
1st Number	2nd Number	Answer
+	+	+
-	-	+
-	+	-
+	-	-

Copy into
note book



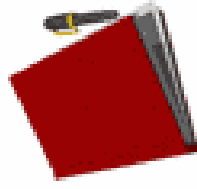
A way to Remember!

To remember whether your answer will be positive or negative when multiplying or dividing, use:



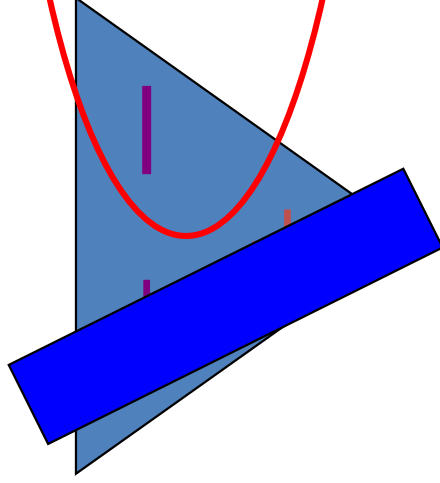
Mr. Multiplication

Copy into
your
notes



E.g. 1
 5×-3

Cover the two signs you are using



The one that is left is
the sign of the answer?

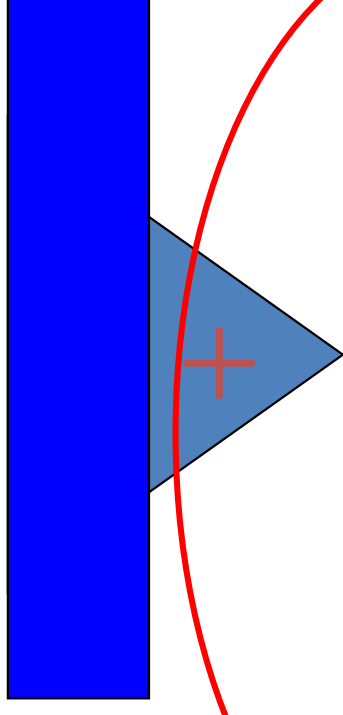
$= -15$

E.g. 2

$$-48 \div -4$$

Cover the two signs you are using

$$= +12$$



The sign that is left
is the sign of the
answer?



Your Turn

$$(1) -2 \times 8 =$$

-16

$$(2) -4 \times -7 =$$

28

$$(3) 5 \times -6 =$$

-30

$$(4) -4 \times -3 =$$

12

$$(5) -7 \times 10 =$$

-70

$$(6) 12 \times -2 =$$

-24

$$(7) 5 \times -7 =$$

-35

$$(8) -7 \times -8 =$$

56

$$(9) -20 \times 10 =$$

-200

$$(10) 22 \times -3 =$$

-66

$$(11) -20 \times -10 =$$

200

$$(12) 12 \times 9 =$$

108

Your Turn:

Complete the following:

$$-3 \times 8 = \boxed{-24}$$

$$42 \div \boxed{-7} = -6$$

$$\boxed{-12} \times -8 = 96$$

$$47 \times \boxed{3} = 141$$

$$-72 \div -6 = \boxed{12}$$

$$-36 \div \boxed{9} = -4$$

$$\boxed{540} \div -90 = -6$$

$$-7 \times \boxed{-25} = 175$$

$$-4 \times -5 \times -8 = \boxed{-160}$$

$$3 \times -8 \div \boxed{-16} = 1.5$$

Mixed division square

A whiteboard interface with a dark blue border. At the top, there is a toolbar with several icons: a smartphone, a pencil, a question mark, a circular arrow, and a speaker. The whiteboard area contains the text "First number" and "Second number" in a simple, sans-serif font. In the bottom-left corner, there is a red circle with a white question mark. In the bottom-right corner, there is a small copyright notice: "(c) 2004 Boardworks Ltd." There are also two purple circular icons with three dots and arrows, one in the top-left and one in the bottom-right of the whiteboard area.

First number

Second number

(c) 2004 Boardworks Ltd.

Mixed multiplication square



An interactive whiteboard interface with a dark blue border. The main area is a large white rectangle. In the top-left corner, there is a toolbar with several icons: a smartphone, a pen, a circular arrow, a multi-colored wheel, a speaker, and a circular arrow with a question mark. In the bottom-right corner, there is a question mark icon. The text "(c) 2004 Boardworks Ltd." is visible in the bottom-right corner of the whiteboard area.

(c) 2004 Boardworks Ltd.

Mixed division square

A whiteboard interface with a dark blue border. The text "First number" is written in the top left, and "Second number" is written in the top right. A toolbar at the bottom contains icons for a whiteboard, a pencil, an eraser, a selection tool, a speaker, and a refresh button. A question mark icon is in the bottom right corner.

First number

Second number

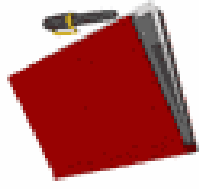
?



SLO

Learn how to multiply several
negative numbers together

Copy into
note book



Multiplying Several Integer Factors

a. $(-1) \times (+1) \times (-1) = +1$

b. $(+1) \times (+1) \times (-1) = -1$

c. $(-1) \times (-1) \times (+1) = +1$

d. $(-1) \times (-1) \times (-1) = -1$

If there is an
even number of
negative signs,
the product is
positive

If there is an
odd number of
negative signs,
the product is
negative

Your Turn

$$1) (-1) \times (+1) \times (-1) = +1$$

$$2) (+1) \times (+1) \times (-1) = -1$$

$$3) (-1) \times (-1) \times (+1) = +1$$

$$4) (-1) \times (-1) \times (-1) = -1$$

$$5) (-1) \times (-1) \times (+1) \times (-1) \times (+1) = -1$$

$$6) (-1) \times (+1) \times (+1) \times (-1) \times (+1) = +1$$



Your Turn:

Multiplying Several Integer Factors

a. $(-1) \times (+1) \times (-1) \times (+1) = 1$

b. $(+1) \times (+1) \times (-1) \times (-1) = 1$

c. $(-1) \times (+1) \times (-1) \times (-1) \times (+1) = -1$

d. $(-1) \times (-1) \times (-1) \times (-1) \times (+1) \times (-1) = -1$

e. $(1) \times (+1) \times (-1) \times (-1) \times (+1) \times (-1) = -1$

f. $(-1) \times (-1) \times (-1) \times (-1) \times (-1) \times (-1) = 1$

g. $(-2) \times (-3) \times (-2) \times (+1) = -12$

h. $(-1) \times (-3) \times (-2) \times (-2) \times (-3) = -36$



Your Turn

$$1) (-2) \times (+2) \times (-1) \times (-3) = -12$$

$$2) (+1) \times (+4) \times (-5) = -20$$

$$3) (-17) \times (-2) \times (+2) = 68$$

$$4) (-2) \times (-3) \times (-6) \times (4) = -144$$

$$5) (-2) \times (-3) \times (-3) = -18$$



Integer cards – multiplication and division



-6	-4	-3	-2	-1	1	2	3	4	6
----	----	----	----	----	---	---	---	---	---

$$\square \times \square = -8$$

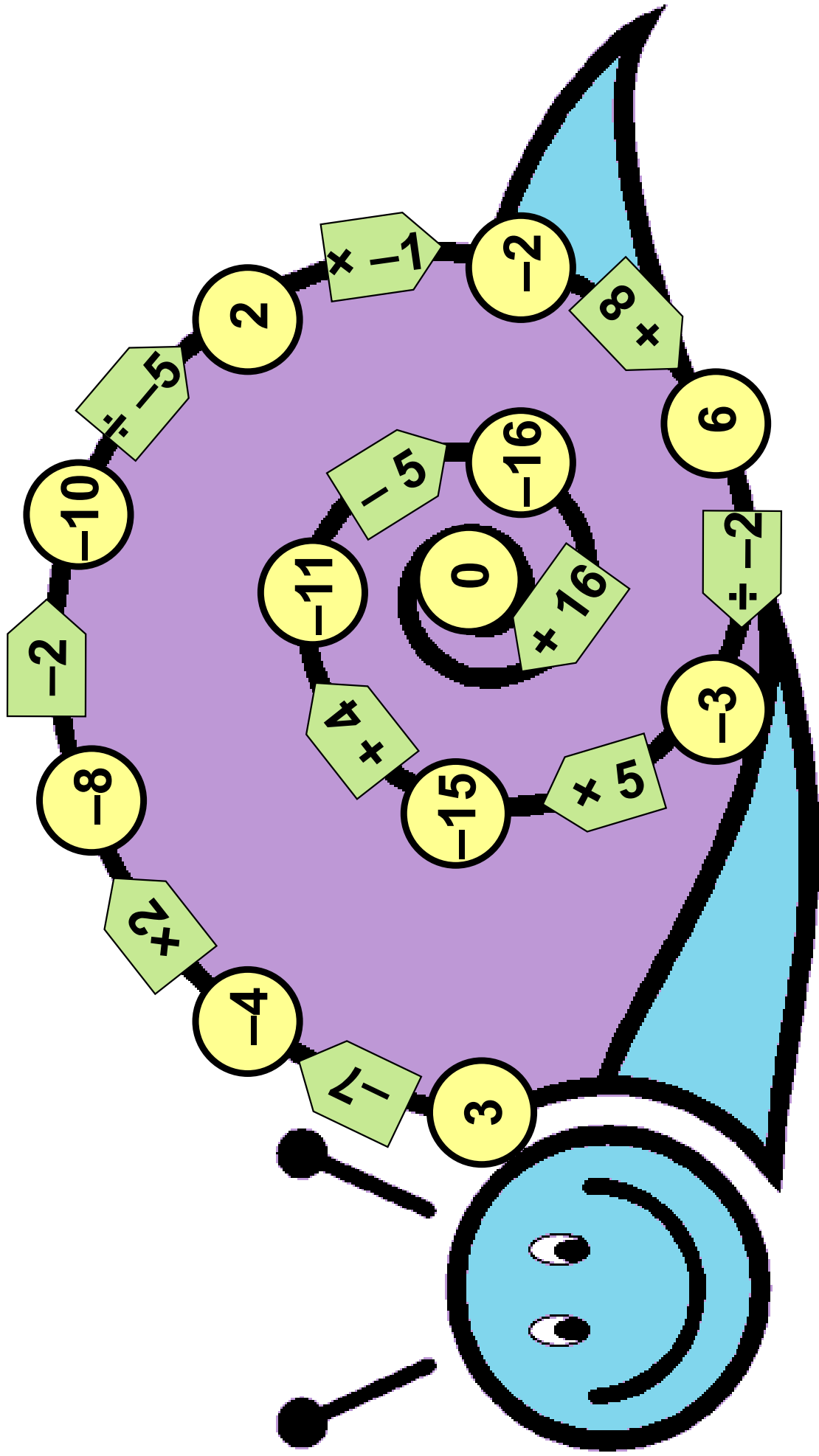
$$\square \times \square = 12$$

$$\square \div \square = -1\frac{1}{2}$$

$$\square \div \square = 2$$



Number spiral

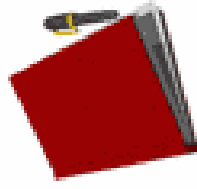


SLO

BEDMAS (order of operations)
and negative numbers



Copy into
note book



Order of Operations With Integers

BEDMAS is always used with negative numbers

E.g.

$$3 \times (-7) + 4 \times (-5) = -21 + -20 = -41$$

$$15 + (+5)^2 \times 2 = 15 + 25 \times 2 = 15 + 50 = 65$$

$$(-18) - (-3)^2 - 9 \times 2 = -18 - 9 - 18 = -45$$