

Integers – Lesson 5

Last week we revised how to add and subtract integers and learned how to multiply. This week we will spend some time practising what we learned as well as moving forward. The first thing we need to learn is how to divide integers.

First let us revise addition and subtraction. There are two important things to remember: -

- Imagine moving up (adding) or down (subtracting) a vertical number line.
- If a calculation has two signs in the middle, $--$ can be changed to $+$ and $+-$ can be changed to $-$.

Now try these examples: -

1) $-9 + 1 =$

2) $-9 + 11 =$

3) $-9 + 9 =$

4) $-9 + -9 =$

5) $-9 - 1 =$

6) $-9 -- 1 =$

7) $-9 - 10 =$

8) $-9 -- 10 =$

9) $-90 + 9 =$

10) $-90 + - 9 =$

11) $-90 - 9 =$

12) $-90 -- 9 =$

Let us remind ourselves about multiplication.

- Multiply or divide as usual
- If both numbers are negative, the answer is positive e.g. $-4 \times -8 = 32$
- If one number is positive and the other negative, the answer is negative
e.g. $4 \times -8 = -32$ and $-3 \times 7 = -21$

Remember $(-3)^2$ means $-3 \times -3 = 9$ whereas -3^2 means $-(3 \times 3) = -9$

Now try these examples: -

13) $-5 \times -6 =$

14) $-6 \times -5 =$

15) $5 \times -6 =$

16) $-5 \times 6 =$

17) $-6 \times 5 =$

18) $6 \times -5 =$

19) $(-5)^2 =$

20) $(-5)^3 =$

21) $-5^2 =$

22) $-5^3 =$

23) $(-6)^2 =$

24) $-6^2 =$

Multiplication and division are connected. For example, if we know $3 \times 5 = 15$, we also know $5 \times 3 = 15$ and $15 \div 3 = 5$ and $15 \div 5 = 3$. Thinking this through, the rules for division must be the same as those for multiplication.

- Divide as usual
- If both numbers are negative, the answer is positive e.g. $-32 \div -4 = -8$
- If one number is positive and the other negative, the answer is negative
e.g. $-45 \div 9 = -5$ and $21 \div -3 = -7$

Have a look at these examples: -

$20 \div -10 = -2$ one number positive one number negative answer negative	$-28 \div -4 = 7$ both numbers negative answer positive	$-24 \div 3 = -8$ one number negative one number positive answer negative	$0 \div -2 = 0$ Zero divided by any number is zero which is neither negative or positive
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Now try these examples: -

25) $-28 \div 7 =$

26) $28 \div -7 =$

27) $-28 \div -7 =$

28) $0 \div -6 =$

29) $54 \div -6 =$

30) $-54 \div -6 =$

31) $0 \div -10 =$

32) $-40 \div 8 =$

33) $-40 \div -8 =$

34) $0 \div -4 =$

35) $36 \div -4 =$

36) $-36 \div 4 =$