

## Simple Multiplication and Division of Integers

Since  $2 \times 6 = 12$ , then obviously  $2 \times (-6)$  cannot also be 12.  
 $2 \times (-6)$  means "2 lots of -6" = -12.

**Some Examples :-**  $3 \times (-5) = -15$                        $6 \times (-7) = -42$ .  
 $(-4) \times 5 = -20$                                        $(-8) \times 8 = -64$ .

Similarly :-                      since  $12 \div 2 = 6$  then obviously  $(-12) \div 2$  cannot also be 6.  
 $(-12) \div 2 =$  "-12 shared by 2" = -6.

**Some Examples :-**  $(-18) \div 9 = -2$                        $(-30) \div 10 = -3$ .  
 $(-42) \div 7 = -6$                                        $(-50) \div 5 = -10$ .

### Exercise 1E (No calculator)

1. Write down each of the following and find the answers :-

- |                      |                      |                      |                     |
|----------------------|----------------------|----------------------|---------------------|
| (a) $3 \times (-7)$  | (b) $8 \times (-7)$  | (c) $5 \times (-8)$  | (d) $6 \times (-4)$ |
| (e) $(-9) \times 3$  | (f) $(-10) \times 7$ | (g) $(-13) \times 2$ | (h) $(-9) \times 8$ |
| (i) $10 \times (-3)$ | (j) $5 \times (-12)$ | (k) $7 \times (-9)$  | (l) $4 \times (-8)$ |
| (m) $10 \times (-2)$ | (n) $(-11) \times 5$ | (o) $(-6) \times 9$  | (p) $(-9) \times 6$ |

2. Write down each of the following and find the answers :-

- |                    |                    |                    |                      |
|--------------------|--------------------|--------------------|----------------------|
| (a) $(-49) \div 7$ | (b) $(-30) \div 6$ | (c) $(-55) \div 5$ | (d) $(-81) \div 9$   |
| (e) $(-50) \div 2$ | (f) $(-72) \div 8$ | (g) $(-44) \div 4$ | (h) $(-36) \div 6$   |
| (i) $(-9) \div 9$  | (j) $(-7) \div 1$  | (k) $(-48) \div 8$ | (l) $(-200) \div 10$ |

### Puzzle No 15

Copy and complete each of these magic squares :-

(a)

3		
	0	
	4	-3

(b)

	7	-1
		3
		4

(c)

-6		
		-3
-1		

row and column total is -12

Remember :- the same number cannot appear more than once in any square.

3. Find the answers to the following :-

- (a)  $(3 \times 8) \div 6$       (b)  $4 \times (-6) \div 3$       (c)  $8 \times (-5) \times 2$       (d)  $7 \times (-1) \times 8$   
 (e)  $6 \times (-8) \div 4$       (f)  $(-4) \times 4 \div 2$       (g)  $9 \times (-4) \div 3$       (h)  $10 \times (-10) \div 20$

4. Find the following :- (hint : find the bit in brackets first)

- (a)  $(9 + (-4)) \times 6$       (b)  $4 \times (3 - 8)$       (c)  $((-9) + 3) \times 3$   
 (d)  $((-2) - 6) \div 4$       (e)  $5 \times (9 - 12)$       (f)  $(10 - 2) \times (-3)$   
 (g)  $((-2) - 2) \times 7$       (h)  $(3 + (-18)) \div 5$       (i)  $((-8) - 10) \div 6$   
 (j)  $(-4) \times ((-1) + 8)$       (k)  $(7 + (-7)) \times 6$       (l)  $(-50) + (-30) \div 20$

## The "Double Negative"

Look at this sequence :-

$$\begin{array}{rcl} 3 - 2 & = & 1 \\ 3 - 1 & = & 2 \\ 3 - 0 & = & 3 \\ 3 - (-1) & = & 4 \\ 3 - (-2) & = & 5 \end{array} \quad \downarrow$$

Can you see that :-

$$3 - (-2) = 5 \text{ is the same as } 3 + 2 = 5 ?$$

Look again !!

$$\begin{array}{rcl} 4 - 2 & = & 2 \\ 4 - 1 & = & 3 \\ 4 - 0 & = & 4 \\ 4 - (-1) & = & 5 \\ 4 - (-2) & = & 6 \end{array} \quad \downarrow$$

$$4 - (-2) \text{ gives the same answer as } 4 + 2$$

**NOTE :-**

a double negative  
always makes a  
positive

Examples :- (a)  $7 - (-2)$       (b)  $3 - (-7)$       (c)  $2 - (-5)$   
 $= 7 + 2$        $= 3 + 7$        $= 2 + 5$   
 $= \underline{9}$        $= \underline{10}$        $= \underline{7}$

## Exercise 2E

1. Find the answers to the following, setting down the 3 lines of working, as shown :-

- |  |  |  |
|--|--|--|
| (a) $8 - (-3)$<br>$= 8 + \dots$<br>$= \dots$ | (b) $5 - (-3)$<br>$= 5 + \dots$<br>$= \dots$ | (c) $6 - (-6)$<br>$= \dots + \dots$<br>$= \dots$ |
| (d) $2 - (-6)$                               | (e) $21 - (-9)$                              | (f) $-2 - (-7)$                                  |
| (g) $-3 - (-8)$                              | (h) $-9 - (-1)$                              | (i) $1 - (-1)$                                   |
| (j) $-8 - (-8)$                              | (k) $0 - (-9)$                               | (l) $5 - (-6)$                                   |
| (m) $-7 - (-9)$                              | (n) $10 - (-10)$                             | (o) $-3 - (-3)$                                  |
| (p) $-6 - (-6)$                              | (q) $12 - (-5)$                              | (r) $-3 - (-11)$                                 |
| (s) $0 - (-11)$                              | (t) $-14 - (-4)$                             | (u) $50 - (-50)$                                 |



2. Simplify :-

(a)  $9 - 6$

(b)  $6 - 9$

(c)  $5 - (-3)$

(d)  $-4 + (-5)$

(e)  $0 - 12$

(f)  $7 + (-3)$

(g)  $5 - (-2)$

(h)  $-4 + (-7)$

(i)  $-10 - (-2)$

(j)  $-15 + 8$

(k)  $-6 - 3$

(l)  $10 - (-2)$

(m)  $-4 - 4$

(n)  $-5 - (-5)$

(o)  $0 - (-21)$

(p)  $13 - (-7)$

(q)  $10 - 1$

(r)  $-9 - 10$

(s)  $-9 + 10$

(t)  $-9 - (-10)$

(u)  $6 + (-8)$

3. Write down each of the following and find the answers :-

(a)  $5 \times (-2)$

(b)  $9 \times (-11)$

(c)  $(-24) \div 8$

(d)  $(-36) \div 4$

(e)  $(-9) \div 3$

(f)  $(-20) \times 8$

(g)  $(-51) \div 3$

(h)  $(-12) \times 10$

(i)  $(-27) \div 3$

(j)  $8 \times (-15)$

(k)  $1.5 \times (-8)$

(l)  $\frac{1}{2}$  of  $(-40)$

(m)  $\frac{1}{3}$  of  $(-21)$

(n)  $(-80) \div 20$

(o)  $(-56) \div 8$

(p)  $(-11) \times 11$

**A random puzzle :-**

Puzzle No 16

The King was escaping from the dungeon and came to two doors, one leading to safety, the other to the torture chamber.

Two friendly looking guards stood, one in front of each door.

One of the guards was known to always tell the truth, the other always lied, but there was no way of telling which was which !

The king was allowed to ask any one of the two guards any one question about which was the door that led to safety.

He found there **was** one question he could ask, and it didn't matter which guard he asked, but it meant he was 100% sure of getting the correct door. What was that question ?

