

One of these answers is wrong. If you find it, [contact](#) me with the question number and correct answer.

1) Simplify the following:

- a)  $3t + 7t$   $10t$   
b)  $3t \times 8t$   $24t^2$   
c)  $12x + 7w - 5x$   $7x + 7w$   
d)  $3y \times 4t$   $12yt$   
e)  $2e^5 \times 3e^7$   $6e^{12}$   
f)  $y^4 \div y^3$   $y$   
g)  $\frac{e^7}{e^3}$   $e^4$   
h)  $\frac{6t^5}{2t^3}$   $3t^2$

- 2) a) Expand  $5(3x - 1)$   $15x - 5$   
b) Expand  $3y(2y + 4)$   $6y^2 + 12y$   
c) Expand and simplify  $2(3y + 5) - 3(4y - 2)$   $-6y + 16$   
d) Expand and simplify  $5(2x - 3) + 2(y - 1)$   $10x + 2y - 17$   
e) Expand and simplify  $(3y - 4)(2y - 1)$   $6y^2 - 11y + 4$

3) Find the  $n^{\text{th}}$  term of the following patterns:

- a) 2, 6, 10, 14, 18 .....  $4n - 2$   
b) 6, 15, 24, 33, 42 .....  $9n - 3$   
c) 6, 3, 0, -3, -6 .....  $-3n + 9$

- 4) a) Write 620000000 in standard form.  $6.2 \times 10^7$   
b) Write 0.00000712 in standard form.  $7.12 \times 10^{-6}$   
c) Write  $9.16 \times 10^5$  as a normal number. 916000  
d) Write  $8.26 \times 10^{-6}$  as a normal number. 0.00000826

One of these answers is wrong. If you find it, [contact](#) me with the question number and correct answer.

5) Factorise the following:

- a)  $2x + 10$                        $2(x + 5)$
- b)  $3y - 12$                          $3(y - 4)$
- c)  $4m + 8$                           $4(m + 2)$
- d)  $2y^2 + 6$                          $2(y^2 + 3)$
- e)  $x^2 + x$                           $x(x + 1)$
- f)  $5x^2 + 10x$                        $5x(x + 2)$
- g)  $7x^2 - 14x$                        $7x(x - 2)$
- h)  $9t^2 - 30t$                        $3t(3t - 10)$

6) From the table below:

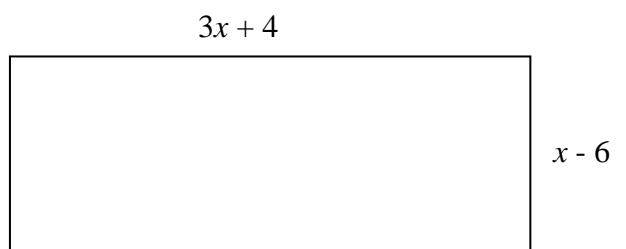
- a) Find the mean number of smarties in a tube.                       $30.7$
- b) Find the median number of smarties in a tube.                       $31$

Number of smarties	Frequency	
29	2	
30	1	
31	5	
32	2	

7)  $-2 \leq x \leq 3$                        $x$  is an integer. Write down all the possible values.  $-2, -1, 0, 1, 2, 3$

8) In the rectangle below:

- a) Find an expression in terms of  $x$ , for the **perimeter** of the rectangle and simplify the expression.                       $8x - 4$
- b) If the perimeter of the rectangle is 44cm, find the value of  $x$ .                       $6$



One of these answers is wrong. If you find it, [contact](#) me with the question number and correct answer.

9) Solve the following equations:

- a)  $3y = 12$  4
- b)  $y - 9 = 3$  12
- c)  $3y + 2 = 14$  4
- d)  $\frac{y}{3} + 6 = 4$  -6
- e)  $2(3y + 2) = 46$  7
- f)  $\frac{2y}{5} - 6 = -3$  7.5
- g)  $4y + 5 = 2y - 3$  -4

10) Make the letter in the bracket the subject of the formula.

- a)  $v^2 = u^2 + 2as$  (s)  $s = \frac{v^2 - u^2}{2a}$
- b)  $\frac{x}{a} + y = c$  (a)  $a = \frac{x}{y - c}$

11) The table below shows the probability of an oddly shaped 4 – sided dice landing on 1, 2, 3 or 4.

- a) Work out the value of  $x$ . 0.23
- b) If the dice is rolled 1000 times how many 3s would you expect to get? 140

1	2	3	4
0.28	0.35	0.14	$x$

- 12) a) Write as a power of 5  
 $5^4 \times 5^2 \times 5$  5<sup>7</sup>
- b) Write as a power of 4  
 $4^9 \div 4^4$  4<sup>5</sup>

13) A map has a scale of 1:100000. If town A is 5cm away from town B on the map, what is the actual distance between them in kilometres. 5km