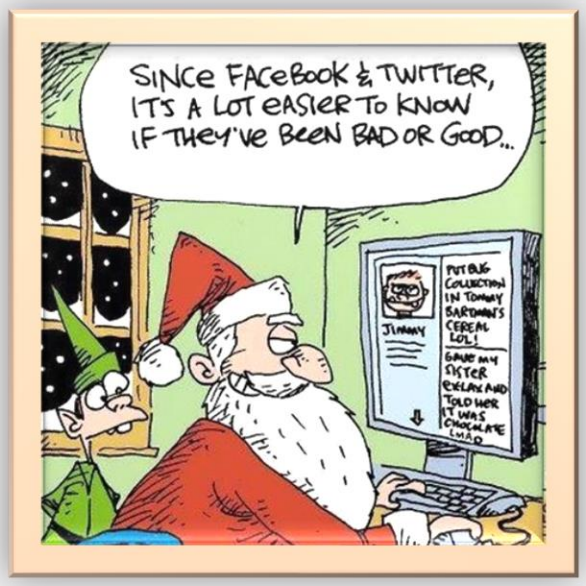
Year 9 – MYP 3

Worksheets

"Christmas Revision Booklet"



2019-2020

1. Work out the value of these terms if x = 4, y = 5 and z = -2

a) $3y$ b) x^2 c) x^3 d) xy

e) y^3 f) $-3z^2$ g) $2x + y$ h) $4z - y$

2. Collect the terms:

a) $7a + 5b + 2a - 6b$ b) $3x - 4y - 2x + 6y$ c) $p - 5q + 3p - q$

d) $2x^2 + x - 3x - 4$ e) $a^2 - 5ab + 4ab + b^2$ f) $4p^2 - 5p + 1 - p^2 - 2p - 7$

3. Expand the brackets:

a) $3(x - y)$ b) $4(5x + 2y)$ c) $2(6a - 5b)$

d) $5(2x + 4y - 3z)$ e) $2p(3p - q + 4)$ f) $ab(a + 2b)$

4. Expand the brackets and collect the terms:

a) $(x + 3)(x + 4)$ b) $(5x + 1)(2x - 3)$ c) $(a - 1)(a - 3)$

d) $(2x - y)(x + 7y)$ e) $(3p - 2q)(5p - 7q)$ f) $(a + b + c)(a - b - c)$

5. Expand the brackets and simplify:

a) $5(x + 3) - 2(x + 4)$

b) $2(a - b) + 3(a + b)$

c) $x(x - 2y) + 3x(5x - y)$

d) $3a(a - b) - b(a - b)$

e) $(x - 2y)(5x - y)$

f) $(5a - b)(2a + 4b)$

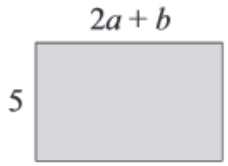
g) $(4p + 3q)(2p - 7q)$

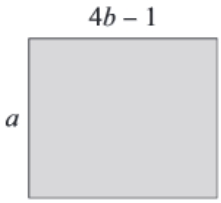
h) $(5x + 3)(4x - 3) - x(3x - 1)$

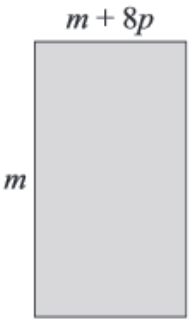
6. Explain why $(x + 6)^2$ is not equal to $x^2 + 36$.

7. In Questions 1 to 6, answer true or false
   1. $a + a = a^2$
   2. $6m + m = 7m$
   3. $6k^2 - k^2 = 6$
   4. $4t \times t = 4t^2$
   5. $a \times 4 \times b = 4ab$
   6. $16x \div 4 = 12$

8. Write down and simplify an expression for the area of each shape below:







9. Simplify using known identities:

i. $(2a - b)^2 =$

ii. $(a + \frac{1}{2}b)^2 =$

iii. $(2a - 3bc)^2 =$

iv. $(a - 2b)(a + 2b) =$

v. $(2a - b)(b + 2a) =$

10. Factorize.

vi. $9y^2 - x^2 =$

vii. $25x^2 - y^2z^4 =$

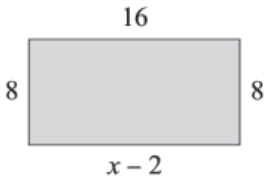
viii. $x^4 - 1 =$

11. Solve the following equations

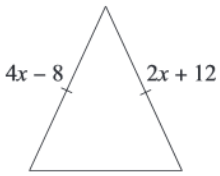
1. $x - 2(x - 1) = 1 - 4(x + 1)$
2. $\frac{x+4}{4} = \frac{2x-1}{3}$
3. $\frac{5}{x-1} = \frac{10}{x}$
4. $9w - 5 = 2$
5. $2(2x + 3)=14$
6. $4(2x + 1) = 2(3x + 5)$
7. $5(2x + 1) - 5 = 2(6x + 5)$
8. $70 = 10(2 - 5y)$
9. $3(2w + 7) - 5 = 4(3w - 6) + 35$

12. I think of a number. I add 9 onto the number then multiply the answer by 3. This gives 36. What was the number I started with?

13. Find the value of x in this rectangle



14. This is an isosceles (the 2 marked sides are equal in length) triangle. Find x.



15. The length of a rectangle is 10 m more than its breadth. If the perimeter of rectangle is 80 m, find the dimensions of the rectangle.

16. A 300 m long wire is used to fence a rectangular plot whose length is twice its width. Find the length and breadth of the plot.

17. The denominator of a fraction is greater than the numerator by 8. If the numerator is increased by 17 and denominator is decreased by 1, the number obtained is 3/2, find the fraction.

18. In a two-digit number, the ten's digit is twice the unit's digit. If 18 is added to the number, the digits interchange their places. Find the numbers.