1. Evaluate the following powers using your calculator.

a) $(-2)^5$ b) 4^3 c) $(-3)^8$

d) 7^5 e) $\left(\frac{1}{3}\right)^3$ f) $\left(-\frac{2}{5}\right)^4$

2. Evaluate. You must show your steps to prove that you know how to follow **BEDMAS**.

a) $6 - (-2 + 5)^2$ b) $(-1 - 4)^2 - (3)^3$ c) $(4)(-3) - 4^2 + 7$

3. Match up the words in column A with the examples in column B.
Note: You can only use the items in column B once so be careful!

A		B
trinomial	_____	a) $2(x + 2) = 2x + 4$
like terms	_____	b) $3x^2$
monomial	_____	c) $6y^3$ and $6x^3$
variable	_____	d) $-4x$ and $9x$
constant term	_____	e) $2x^2 + x - 6$
binomial	_____	f) $2x + 3$
unlike terms	_____	g) x
distributive law	_____	h) 5

4. Combine 'like' terms.

a) $-5b + 2b$ = _____ b) $-3a + 2a - a$ = _____

c) $4u - 6 + u + 3$ = _____ d) $7a + 3a + 2b - 5b$ = _____

e) $-32g + 10h - 15g + 4h$ = _____ f) $3x - y + 7 - x + 6y - 7$ = _____

5. Add **or** subtract and then collect like terms. Remember to show ***2*** steps!

a) $(4x - 1) + (x - 2)$

= _____

= _____

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

= _____

= _____

c) $(a^2 - 3) + (2a^2 + 3)$

= _____

= _____

d) $(d^2 - 2d + 1) - (d^2 + d - 2)$

= _____

= _____

e) $(x^2 - 4x + 1) + (5x^2 + 2x - 6)$

= _____

= _____

f) $(9a^2 + 2a - 3) - (-6a^2 + 4a + 7)$

= _____

= _____

6. Multiply the following monomials.

a) $(4a)(-5a^2) =$ _____

b) $(35b)(2b) =$ _____

c) $(-7x^2)(-2) =$ _____

d) $(5x)^2 =$ _____

7. Expand using the distributive law.

a) $6(x + 3) =$ _____

b) $-2(4 - 2y) =$ _____

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

d) $-(a - 5b + 2) =$ _____

e) $x(x - 5) =$ _____

f) $-2y(y - 6) =$ _____

g) $3t(2t + 1) =$ _____

h) $-p(p^2 - 5p + 3) =$ _____

8. Simplify the following expression then determine its value when the variable has the given value:

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

= _____

= _____

<u>when x = 2</u>

= _____

= _____

b) $2x(3x - 5) - 5(x - 3)$

= _____

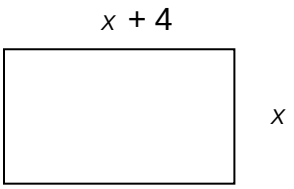
= _____

<u>when x = –3</u>

= _____

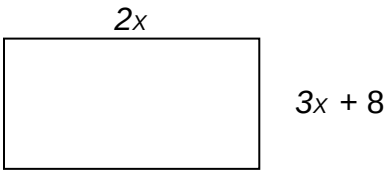
= _____

9. a) (i) Write an expression to represent the **perimeter** of each rectangle. Then simplify.



(ii) Use your expression from (i) to find the perimeter when x=3cm.

b) (i) Write an expression to represent the **area** of each rectangle. Then simplify.



(ii) Use your expression from (i) to find the area when x=5cm.

Answers:

1. a) -32 b) 64 c) 6561 d) 16807 e) $\frac{1}{27}$ f) $\frac{16}{625}$

2. a) -3 b) 16 c) -21

3. e, d, b, g, h, f, c, a

4. a) $-3b$ b) $-2a$ c) $5u - 3$ d) $10a - 3b$ e) $-47g + 14h$ f) $2x + 5y$

5. a) $5x - 3$ b) $-q - 6$ c) $3a^2$ d) $-3d + 3$ e) $6x^2 - 2x - 5$ f) $15a^2 - 2a - 10$

6. a) $-20a^3$ b) $70b^2$ c) $14x^2$ d) $25x^2$

7. a) $6x + 18$ b) $-8 + 4y$ c) $3x - 6y + 15$ d) $-a + 5b - 2$
e) $x^2 - 5x$ f) $-2y^2 + 12y$ g) $6t^2 + 3t$ h) $-p^3+5p^2-3p$

8. a) $11x+8$; 30 b) $6x^2-15x+15$; 114

9. a) $P=4x+8$; 20 cm b) $A=6x^2+16x$; 230 cm^2