



## Evaluating Expressions

Evaluating an expression means finding its value. Your solution will most likely be a number. For expressions that contain variables, you will probably be given values for those variables, which you will then substitute into the equation (or **plug in**), and then evaluate the arithmetic expression that results.

Remember to follow order of operations: Start with any expressions in brackets, then exponents, then multiplication and division from left to right, then addition and subtraction from left to right.

*Example 1:* Evaluate  $2x - 3y + z$  when  $x = 3$ ,  $y = -4$  and  $z = 5$ .

*Solution:*

$$\begin{aligned}2x - 3y + z &= 2[3] - 3[-4] + [5] \\ &= 6 + 12 + 5 \\ &= 23\end{aligned}$$

*Example 2:* Evaluate  $(x - 3)^3 + 3(y \div 2)^2 - 3$  when  $x = 4$  and  $y = 8$ .

*Solution:*

$$\begin{aligned}(x - 3)^3 + 3(y \div 2)^2 - 3 &= ([4] - 3)^3 + 3([8] \div 2)^2 - 3 \\ &= (1)^3 + 3(4)^2 - 3 \\ &= 1 + 3 \times 16 - 3 \\ &= 1 + 48 - 3 \\ &= 46\end{aligned}$$

### EXERCISES

A. Evaluate:

1)  $2x + 3y$  when  $x = 1$  and  $y = -1$

2)  $3x - 5y$  when  $x = 0$  and  $y = -3$

3)  $2x^2 - 3(y + 1)$  when  $x = -2$  and  $y = 3 = 15$



4)  $2(x - 3)^2 - (y - x^2)$  when  $x = 4$  and  $y = 15$

5)  $3(2x - 5) + x[(y - 2x) \div z] - 3$  when  $x = 4$ ,  $y = 10$  and  $z = 2$

6)  $\frac{1}{2}[2y(x - 5) \div (3x - 2)]^2$  when  $x = 4$  and  $y = 2$

7)  $2(3x - 2) + [(4y + 1) \div z]^2$  when  $x = 3$ ,  $y = -4$  and  $z = 5$

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## SOLUTIONS

A: (1) -1 (2) 15 (3) -4 (4) 3 (5) 10 (6)  $\frac{2}{25}$  (7) 23

