

If you can read an algebraic expression (i.e. one that contains variables), then you should also be able to evaluate the expression.

**EVALUATING EXPRESSIONS**

Finding the results of the calculations of an expression when all variable values are known.

**Exercise #3:** For each given expression, explain in steps what the calculation is doing and then find its value for the given variable values.

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(a) Evaluate  $4x - 7$  when  $x = 5$ . First explain what calculations are occurring in the expression and then find its value.

$$\begin{aligned}
 &4x - 7 \\
 &4(5) - 7 \\
 &20 - 7 = \boxed{13}
 \end{aligned}$$

(b) Evaluate the expression  $8 - 2x^2$  when  $x = -3$ . Show the calculations you do and the order in which you do them:

Calculation:

$$\begin{aligned}
 &8 - 2(-3)^2 \quad \begin{matrix} \nearrow +9 \\ \nearrow \cdot 2 \end{matrix} \\
 &8 - 2 \cdot 9 \\
 &8 - 18 = -10
 \end{aligned}$$

Explanation:  $x$  was squared multiplied by 2 subtracted from 8

(c) Evaluate the expression  $\frac{2(x+8)}{3} + 1$  for when  $x = -2$ . Show the steps in your calculation.

**Exercise #4:** What is the value of the expression  $\frac{1}{2}x^2 - 2x - 3$  when  $x = 4$ ?

- (1) -3
- (2) -8
- (3) 3
- (4) 7

27 18

$$\begin{array}{r}
 5 \\
 49 \\
 \times 6 \\
 \hline
 294
 \end{array}$$

(49)

$$\begin{array}{r}
 6 \overline{) 294} \\
 \underline{-24} \downarrow \\
 54
 \end{array}$$