

1.6 Evaluating Expressions/Formulas

A. Evaluation

To evaluate an expression/formula, just plug the number in (surrounded by parentheses).

Example 1: Evaluate $3x^2 - 4x + 3$ when $x = -2$

Solution

$$3(-2)^2 - 4(-2) + 3$$

$$3 \cdot 4 - 4(-2) + 3$$

$$3 \cdot 4 + 8 + 3$$

$$12 + 8 + 3 = 20 + 3$$

Ans 23

Example 2: Evaluate $5 - x^2 - y$ when $x = 2$ and $y = -1$

Solution

$$5 - (2)^2 - (-1)$$

$$5 - 4 - (-1) = 1 - (-1)$$

Ans 2

B. List of Formulas to Memorize

1. Temperature Conversion

$$\text{Celsius to Fahrenheit: } F = \frac{9}{5}C + 32$$

$$\text{Fahrenheit to Celsius: } C = \frac{5}{9}(F - 32)$$

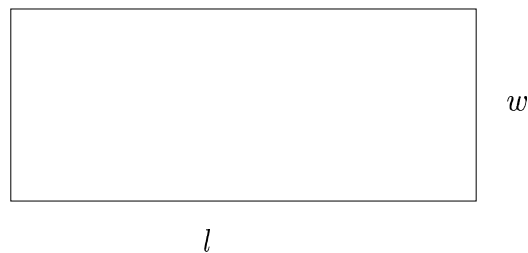
2. Simple Interest

$$I = Prt$$

Here P =principal (amount invested), r =interest rate, t =time in years.

3. Geometry Formulas

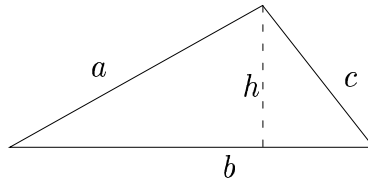
1. Rectangle:



$$\text{Area} = lw$$

$$\text{Perimeter} = 2l + 2w$$

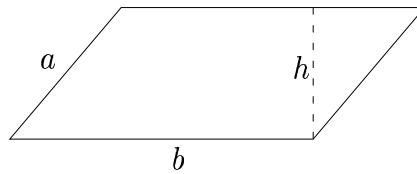
2. Triangle:



$$\text{Area} = \frac{1}{2}bh$$

$$\text{Perimeter} = a + b + c$$

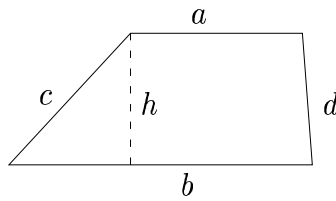
3. Parallelogram:



$$\text{Area} = bh$$

$$\text{Perimeter} = 2a + 2b$$

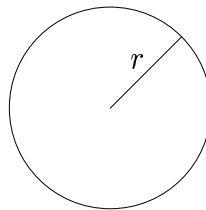
4. Trapezoid:



$$\text{Area} = \frac{1}{2}(a + b)h$$

$$\text{Perimeter} = a + b + c + d$$

5. Circle:



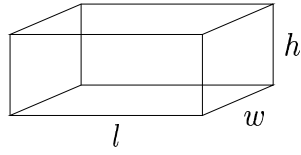
$$\text{Area} = \pi r^2$$

$$\text{Perimeter} = 2\pi r$$

$$\text{Diameter, } d = 2r$$

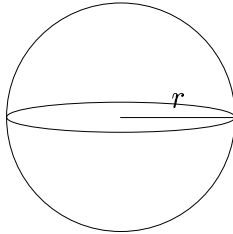
Note: π is irrational and is approximately 3.1415...

6. Box:



$$\text{Volume} = lwh$$

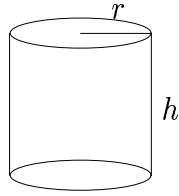
7. Sphere:



$$\text{Volume} = \frac{4}{3}\pi r^3$$

$$\text{Surface Area} = 4\pi r^2$$

8. Cylinder:



$$\text{Volume} = \pi r^2 h$$

Note: To use any of these formulas, just plug the numbers in and evaluate as in Part A.