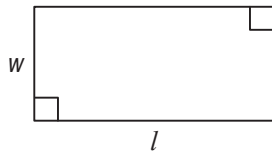# ALGEBRA I FORMULA SHEET

Formulas that you may need to solve questions on this exam are found below.
You may use calculator π or the number 3.14 as an approximation of π.
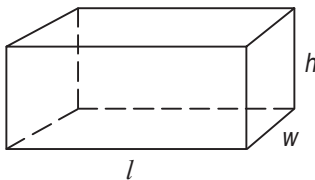
Rectangle

$A = lw$
$P = 2l + 2w$

Rectangular Prism

$V = lwh$

Linear Equations

Slope: $m = \dfrac{y_2 - y_1}{x_2 - x_1}$

Point-Slope Form: $(y - y_1) = m(x - x_1)$

Slope-Intercept Form: $y = mx + b$

Standard Form: $Ax + By = C$

Arithmetic Properties

Additive Inverse: $a + (^-a) = 0$

Multiplicative Inverse: $a \cdot \dfrac{1}{a} = 1$

Commutative Property: $a + b = b + a$
$a \cdot b = b \cdot a$

Associative Property: $(a + b) + c = a + (b + c)$
$(a \cdot b) \cdot c = a \cdot (b \cdot c)$

Identity Property: $a + 0 = a$
$a \cdot 1 = a$

Distributive Property: $a \cdot (b + c) = a \cdot b + a \cdot c$
$a \cdot (b - c) = a \cdot b - a \cdot c$

Multiplicative Property of Zero: $a \cdot 0 = 0$

Additive Property of Equality:
If $a = b$, then $a + c = b + c$

Multiplicative Property of Equality:
If $a = b$, then $a \cdot c = b \cdot c$

ALGEBRA I CONSTRUCTED-RESPONSE QUESTIONS

GENERAL DESCRIPTION OF SCORING GUIDELINES

4 Points

- The response demonstrates a *thorough* understanding of the mathematical concepts and procedures required by the task.
- The response provides correct answer(s) with clear and complete mathematical procedures shown and a correct explanation, as required by the task. Response may contain a minor "blemish" or omission in work or explanation that does not detract from demonstrating a *thorough* understanding.

3 Points

- The response demonstrates a *general* understanding of the mathematical concepts and procedures required by the task.
- The response and explanation (as required by the task) are mostly complete and correct. The response may have minor errors or omissions that do not detract from demonstrating a *general* understanding.

2 Points

- The response demonstrates a *partial* understanding of the mathematical concepts and procedures required by the task.
- The response is somewhat correct with *partial* understanding of the required mathematical concepts and/or procedures demonstrated and/or explained. The response may contain some work that is incomplete or unclear.

1 Point

- The response demonstrates a *minimal* understanding of the mathematical concepts and procedures required by the task.

0 Points

- The response has no correct answer and *insufficient* evidence to demonstrate any understanding of the mathematical concepts and procedures required by the task.