

## Grade 11 Formula Sheet

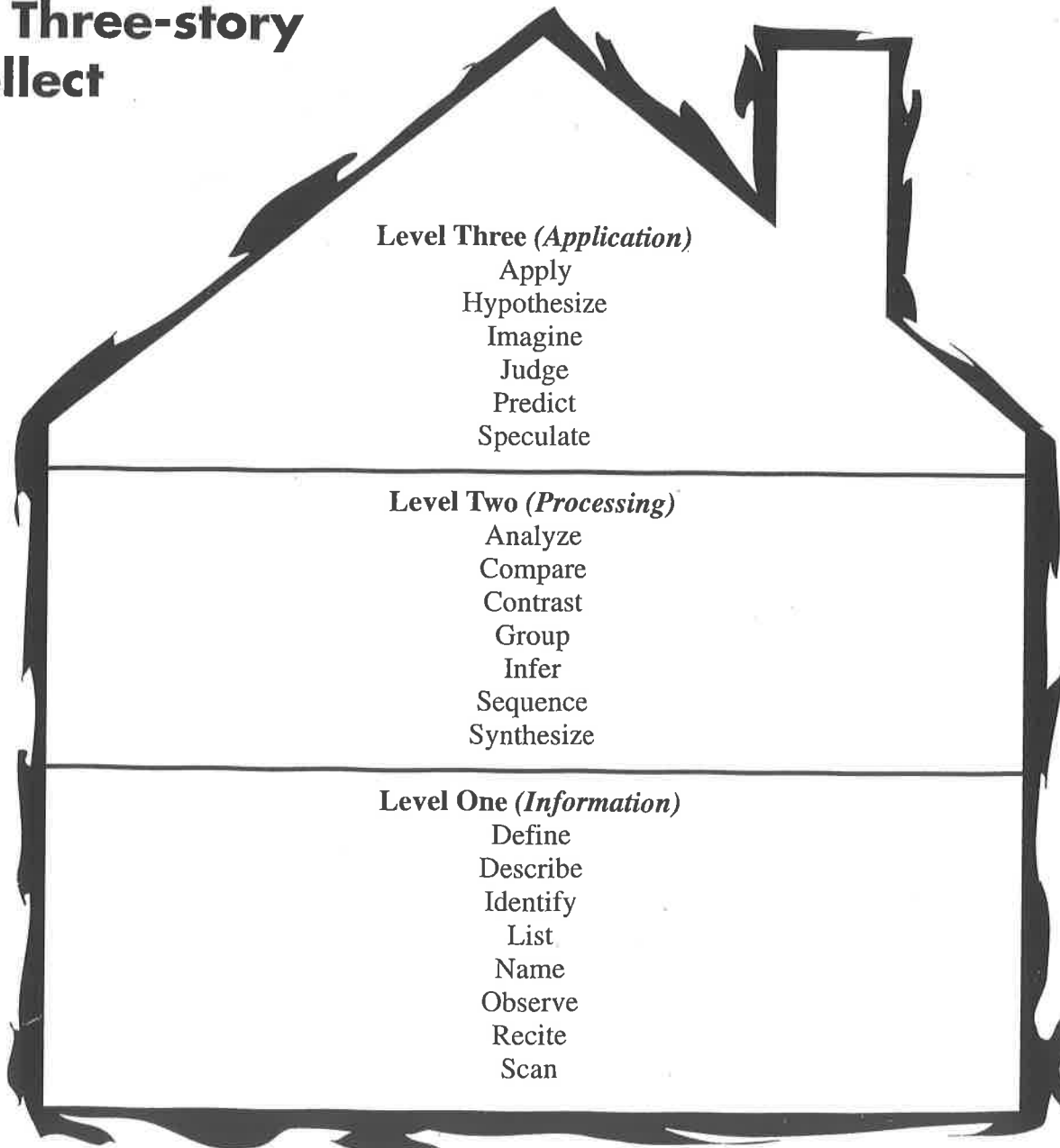
You may use the following formulas to solve problems on this test.

Pythagorean Theorem	$a^2 + b^2 = c^2$
Distance formula	$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$
Quadratic formula	$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$
Trigonometric Relations	$\sin \theta = \frac{\text{opposite}}{\text{hypotenuse}} \quad \cos \theta = \frac{\text{adjacent}}{\text{hypotenuse}}$ $\tan \theta = \frac{\text{opposite}}{\text{adjacent}}$
$A = \pi r^2$ $C = \pi d$	$A = \text{area}$ $C = \text{circumference}$ $d = \text{diameter}$ $r = \text{radius}$
$SA = ph + 2B$ $SA = \pi r l + \pi r^2$ $SA = 4\pi r^2$	$SA = \text{surface area}$ $B = \text{area of base}$ $h = \text{height}$ $p = \text{perimeter}$ $r = \text{radius}$ $l = \text{slant height}$
$V = Bh$ $V = \frac{1}{3}Bh$ $V = \frac{4}{3}\pi r^3$	$V = \text{volume}$ $B = \text{area of base}$ $h = \text{height}$ $r = \text{radius}$

# Costa's Levels of Questions

1. **Level One** questions focus on gathering and recalling information.
2. **Level Two** questions focus on making sense of gathered information.
3. **Level Three** questions focus on applying and evaluating information.

## The Three-story Intellect





## Costa's Content Specific Questions

### Costa's Levels of Questioning: Math



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### Costa's Levels of Questioning: Math



**LEVEL 1**

What information is given?

What are you being asked to find?

What formula would you use in this problem?

What does \_\_\_\_\_ mean?

What is the formula for...?

List the...

Name the...

Where did...?

What is...?

When did...?

Explain the concept of...

Give me an example of...

Describe in your own words what \_\_\_\_\_ means.

What mathematical concepts does this problem connect to?

Draw a diagram of...

Illustrate how \_\_\_\_\_ works.

**LEVEL 2**

What additional information is needed to solve this problem?

Can you see other relationships that will help you find this information?

How can you put your data in graphic form?

What occurs when...?

Does it make sense to...?

Compare and contrast \_\_\_\_\_ to \_\_\_\_\_.

What was important about...?

What prior research/formulas support your conclusions?

How else could you account for...?

Explain how you calculate...

What equation can you write to solve the word problem?

**LEVEL 3**

Predict what will happen to \_\_\_\_\_ as \_\_\_\_\_ is changed.

Using a math principle, how can we find...?

Describe the events that might occur if...

Design a scenario for...

Pretend you are...

What would the world be like if...?

How can you tell if your answer is reasonable?

What would happen to \_\_\_\_\_ if \_\_\_\_\_ variable were increased/decreased?

How would repeated trials affect your data?

What significance is this formula to the subject you're learning?

What type of evidence is most compelling to you?

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