



# Algebra 1

## End-of-Course Assessment

### Sample Questions

#### Regular Print Paper-Based Accommodation

The intent of these sample test materials is to orient teachers and students to the types of questions on the Algebra 1 EOC Assessment. By using these materials, students who will use the regular print paper-based accommodation will become familiar with the types of items and response formats they will see on the paper-based form of the test. On computer-based forms of the Algebra 1 EOC Assessment, students respond to some items using fill-in response boxes. **On the regular print paper-based form, students respond to the same items by filling in their answers on a grid.**

The sample questions and answers are not intended to demonstrate the length of the actual test, nor should student responses be used as an indicator of student performance on the actual test. Additional information about test items can be found in the *Algebra 1 EOC Assessment Test Item Specifications* at <http://fcab.fldoe.org/eoc/itemspecs.asp>.

The Algebra 1 EOC Assessment and sample questions and answers are based on the 2007 Next Generation Sunshine State Standards.

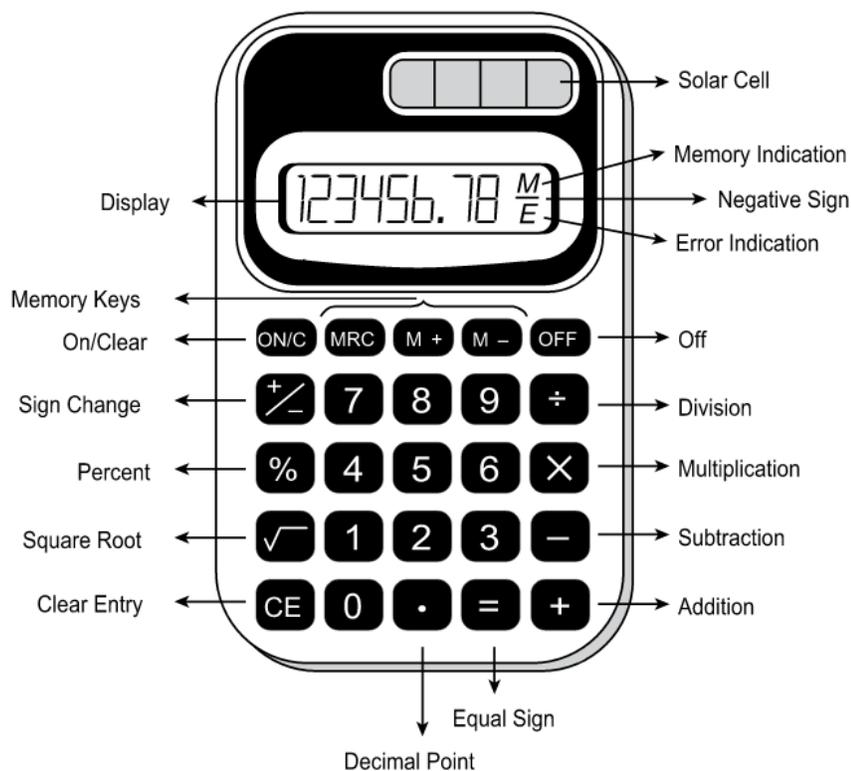
The regular print paper-based accommodation sample questions and the sample answers are only available online at <http://fcab.fldoe.org/eoc/>. Computer-based practice tests (ePATs) are available online at [www.FLAssessments.com/ePAT](http://www.FLAssessments.com/ePAT).

#### **Directions for Answering the Algebra 1 Sample Questions**

Mark your answers in this booklet. You may need formulas and conversions to help you solve some of the problems. You may refer to the Reference Sheet on pages 4 and 5 as needed.

This is a picture of a generic 4-function calculator and its parts.

### GENERIC 4-FUNCTION CALCULATOR



### HELPFUL HINTS FOR USING A FOUR-FUNCTION CALCULATOR

1. Read the problem very carefully. Then decide whether or not you need the calculator to help you solve the problem.
2. When starting a new problem, always clear your calculator by pressing the on/clear key.
3. If you see an E in the display, clear the error before you begin.
4. If you see an M in the display, clear the memory and the calculator before you begin.
5. If the number in the display is not one of the answer choices, check your work.
6. Remember, your calculator will NOT automatically perform the algebraic order of operations.
7. Calculators might display an incorrect answer if you press the keys too quickly. When working with calculators, use careful and deliberate keystrokes, and always remember to check your answer to make sure that it is reasonable.
8. The negative sign may appear either to the left or to the right of the number.
9. When solving items, wait until the final step to round decimal equivalents and/or approximations. Focus on whether the item specifies the decimal place, equivalent fraction, and/or  $\pi$  approximation needed for the answer. In most cases, front-end estimation and truncation are not accurate processes for estimation.
10. Always check your answer to make sure that you have completed all of the necessary steps.

## Directions for Completing the Response Grids

1. Work the problem and find an answer.
2. Write your answer in the answer boxes at the top of the grid.
  - Print your answer with the first digit in the left answer box OR with the last digit in the right answer box.
  - Print only one digit or symbol in each answer box. Do NOT leave a blank answer box in the middle of an answer.
  - Be sure to write a decimal point, fraction bar, and/or negative sign in the answer box if it is part of the answer.
  - Many answers may be entered as either a decimal or a fraction, unless the test item requires that the answer be given in a specific form. Students must NOT place a **mixed number** such as  $13\frac{1}{4}$  in the answer boxes. If the answer is a mixed number, it must be converted to an improper fraction, such as  $\frac{53}{4}$ , or to a decimal number, such as 13.25. If  $13\frac{1}{4}$  were entered as is, it would be scored as  $\frac{131}{4}$  and would be counted as incorrect.
3. Fill in a bubble under each box in which you wrote your answer.
  - Fill in one and ONLY one bubble for each answer box. Do NOT fill in a bubble under an unused answer box.
  - Fill in each bubble by making a solid mark that completely fills the circle.
  - You MUST fill in the bubbles accurately to receive credit for your answer.

# Algebra 1 End-of-Course and Geometry End-of-Course Assessments Reference Sheet

Area	
Parallelogram	$A = bh$
Triangle	$A = \frac{1}{2}bh$
Trapezoid	$A = \frac{1}{2}h(b_1 + b_2)$
Circle	$A = \pi r^2$
Regular Polygon	$A = \frac{1}{2}aP$

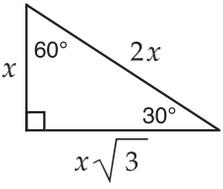
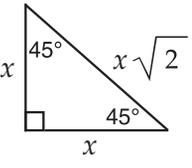
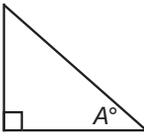
KEY	
$b$ = base	$A$ = area
$h$ = height	$B$ = area of base
$w$ = width	$C$ = circumference
$d$ = diameter	$V$ = volume
$r$ = radius	$P$ = perimeter
$\ell$ = slant height	of base
$a$ = apothem	S.A. = surface area
Use 3.14 or $\frac{22}{7}$ for $\pi$ .	

<b>Circumference</b> $C = \pi d$ or $C = 2\pi r$
---

Volume/Capacity		Total Surface Area	
	Rectangular Prism	$V = bwh$ or $V = Bh$	$S.A. = 2bh + 2bw + 2hw$ or $S.A. = Ph + 2B$
	Right Circular Cylinder	$V = \pi r^2 h$ or $V = Bh$	$S.A. = 2\pi r h + 2\pi r^2$ or $S.A. = 2\pi r h + 2B$
	Right Square Pyramid	$V = \frac{1}{3}Bh$	$S.A. = \frac{1}{2}P\ell + B$
	Right Circular Cone	$V = \frac{1}{3}\pi r^2 h$ or $V = \frac{1}{3}Bh$	$S.A. = \frac{1}{2}(2\pi r)\ell + B$
	Sphere	$V = \frac{4}{3}\pi r^3$	$S.A. = 4\pi r^2$

Sum of the measures of the interior angles of a polygon = $180(n-2)$
Measure of an interior angle of a regular polygon = $\frac{180(n-2)}{n}$
where: $n$ represents the number of sides

# Algebra 1 End-of-Course and Geometry End-of-Course Assessments Reference Sheet

<p style="text-align: center;"><b>Slope formula</b></p> $m = \frac{y_2 - y_1}{x_2 - x_1}$ <p>where <math>m</math> = slope and <math>(x_1, y_1)</math> and <math>(x_2, y_2)</math> are points on the line</p>	<p style="text-align: center;"><b>Distance between two points</b></p> <p><math>P_1(x_1, y_1)</math> and <math>P_2(x_2, y_2)</math></p> $\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$
<p style="text-align: center;"><b>Slope-intercept form of a linear equation</b></p> $y = mx + b$ <p>where <math>m</math> = slope and <math>b</math> = <math>y</math>-intercept</p>	<p style="text-align: center;"><b>Midpoint between two points</b></p> <p><math>P_1(x_1, y_1)</math> and <math>P_2(x_2, y_2)</math></p> $\left( \frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$
<p style="text-align: center;"><b>Point-slope form of a linear equation</b></p> $y - y_1 = m(x - x_1)$ <p>where <math>m</math> = slope and <math>(x_1, y_1)</math> is a point on the line</p>	<p style="text-align: center;"><b>Quadratic formula</b></p> $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ <p>where <math>a</math>, <math>b</math>, and <math>c</math> are coefficients in an equation of the form <math>ax^2 + bx + c = 0</math></p>
<p style="text-align: center;"><b>Special Right Triangles</b></p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>30-60-90 triangle: legs <math>x</math> and <math>x\sqrt{3}</math>, hypotenuse <math>2x</math>.</p> </div> <div style="text-align: center;">  <p>45-45-90 triangle: legs <math>x</math> and <math>x</math>, hypotenuse <math>x\sqrt{2}</math>.</p> </div> </div>	<p style="text-align: center;"><b>Trigonometric Ratios</b></p> <div style="display: flex; align-items: center;">  <div> <math display="block">\sin A^\circ = \frac{\text{opposite}}{\text{hypotenuse}}</math> <math display="block">\cos A^\circ = \frac{\text{adjacent}}{\text{hypotenuse}}</math> <math display="block">\tan A^\circ = \frac{\text{opposite}}{\text{adjacent}}</math> </div> </div>

<b>Conversions</b>	
<ul style="list-style-type: none"> <li>1 yard = 3 feet</li> <li>1 mile = 1,760 yards = 5,280 feet</li> <li>1 acre = 43,560 square feet</li> <li>1 hour = 60 minutes</li> <li>1 minute = 60 seconds</li> </ul>	<ul style="list-style-type: none"> <li>1 cup = 8 fluid ounces</li> <li>1 pint = 2 cups</li> <li>1 quart = 2 pints</li> <li>1 gallon = 4 quarts</li> <li>1 pound = 16 ounces</li> <li>1 ton = 2,000 pounds</li> </ul>
<ul style="list-style-type: none"> <li>1 meter = 100 centimeters = 1000 millimeters</li> <li>1 kilometer = 1000 meters</li> <li>1 liter = 1000 milliliters = 1000 cubic centimeters</li> <li>1 gram = 1000 milligrams</li> <li>1 kilogram = 1000 grams</li> </ul>	

1. David and Terri drove a small motorboat down a river with the current. The rate the boat traveled in still water was  $r$  miles per hour, and the current's average speed was  $c$  miles per hour. It took them 1.5 hours to travel 4 miles downstream. Which of the following equations can be used to represent this information?

Ⓐ  $1.5 = (r + c)4$

Ⓑ  $1.5 = (r - c)4$

Ⓒ  $4 = (r + c)1.5$

Ⓓ  $4 = (r - c)1.5$

2. Let  $A = \{3, -2, -1, 0, 1, 2, 3\}$

Let  $B = \{0, 1, 2, 3, 4, 5\}$

Let  $C = \{1, 3, 5, 7, 9\}$

Which set is equivalent to  $(A \cup B) \cap C$  ?

Ⓐ  $\{1, 3\}$

Ⓑ  $\{1, 3, 5\}$

Ⓒ  $\{0, 1, 2, 3, 5, 7, 9\}$

Ⓓ  $\{-3, -2, -1, 0, 1, 2, 3, 4, 5, 7, 9\}$

3. As a diver swims deeper underwater, the water pressure in pounds per square inch (PSI) increases on the diver. The table below shows the pressure in PSI for several depths of water.

**WATER PRESSURE**

Depth (in feet)	Pressure (in PSI)
10	4.3
20	8.6
30	12.9
40	17.2
50	21.5

Which equation represents  $p$  as a function of  $d$ ?

- Ⓐ  $p = 4.3d$
- Ⓑ  $p = 0.43d$
- Ⓒ  $p = 23.3d$
- Ⓓ  $p = 2.33d$

4. Charlie needs to simplify the expression below before he substitutes values for  $x$  and  $y$ .

$$\frac{x^{18}y^{12} + x^9y^8}{x^3y^4}$$

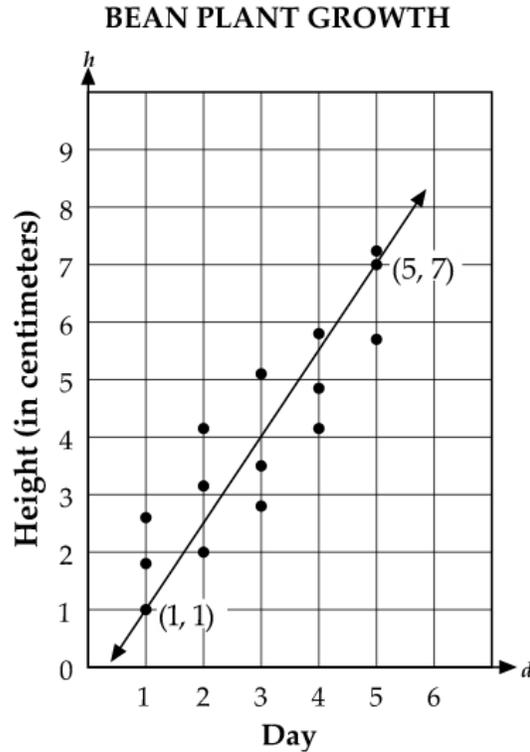
If  $x \neq 0$  and  $y \neq 0$ , which of the following is a simplified version of the expression above?

- Ⓐ  $x^9y^5$
- Ⓑ  $x^{24}y^{16}$
- Ⓒ  $x^6y^3 + x^3y^2$
- Ⓓ  $x^{15}y^8 + x^6y^4$

5. What is the slope of the line defined by the equation  $8x + 2y = 5$  ?

⊖	⊖	⊖	⊖	⊖	⊖	⊖
	⊘	⊘	⊘	⊘	⊘	
•	•	•	•	•	•	•
0	0	0	0	0	0	0
1	1	1	1	1	1	1
2	2	2	2	2	2	2
3	3	3	3	3	3	3
4	4	4	4	4	4	4
5	5	5	5	5	5	5
6	6	6	6	6	6	6
7	7	7	7	7	7	7
8	8	8	8	8	8	8
9	9	9	9	9	9	9

6. Jodi is studying plant growth rates for her science project. For her project, she selected three bean plants of equal height. Then, for the next five days, she measured the height, in centimeters, of each plant and plotted the values on the graph below.



She drew a line of best fit passing through points (1, 1) and (5, 7) on the graph to show one way of calculating the mean growth rate of the plants. What is the slope of the line she drew?

⊖	⊖	⊖	⊖	⊖	⊖	⊖
⊗	⊗	⊗	⊗	⊗	⊗	⊗
⊙	⊙	⊙	⊙	⊙	⊙	⊙
0	0	0	0	0	0	0
1	1	1	1	1	1	1
2	2	2	2	2	2	2
3	3	3	3	3	3	3
4	4	4	4	4	4	4
5	5	5	5	5	5	5
6	6	6	6	6	6	6
7	7	7	7	7	7	7
8	8	8	8	8	8	8
9	9	9	9	9	9	9

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