

Equations and Expressions- By Category: Level 1

1	<p>If <math>5x + 6 = 10</math>, what is the value of <math>10x + 3</math> ?</p> <p>A) 4 B) 9 C) 11 D) 20</p>	<p>2 step Level 1-No Calculator</p>
2	<p>If <math>16 + 4x</math> is 10 more than 14, what is the value of <math>8x</math> ?</p> <p>A) 2 B) 6 C) 16 D) 80</p>	<p>2 step Level 1-With Calculator</p>
3	<p>If <math>y = kx</math>, where <math>k</math> is a constant, and <math>y = 24</math> when <math>x = 6</math>, what is the value of <math>y</math> when <math>x = 5</math> ?</p> <p>A) 6 B) 15 C) 20 D) 23</p>	<p>2 step Level 1-With Calculator</p>
4	<p>Which of the following expressions is equal to 0 for some value of <math>x</math> ?</p> <p>A) <math> x - 1  - 1</math> B) <math> x + 1  + 1</math> C) <math> 1 - x  + 1</math> D) <math> x - 1  + 1</math></p>	<p>Absolute Value Level 1-No Calculator</p>
5	<p>For what value of <math>n</math> is <math> n - 1  + 1</math> equal to 0 ?</p> <p>A) 0 B) 1 C) 2 D) There is no such value of <math>n</math>.</p>	<p>Absolute Value Level 1-With Calculator</p>
6	<p>For <math>i = \sqrt{-1}</math>, what is the sum <math>(7 + 3i) + (-8 + 9i)</math> ?</p> <p>A) <math>-1 + 12i</math> B) <math>-1 - 6i</math> C) <math>15 + 12i</math> D) <math>15 - 6i</math></p>	<p>Add like terms Level 1-No Calculator</p>

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7	$(x^2y - 3y^2 + 5xy^2) - (-x^2y + 3xy^2 - 3y^2)$ <p>Which of the following is equivalent to the expression above?</p> <p>A) <math>4x^2y^2</math>          B) <math>8xy^2 - 6y^2</math>          C) <math>2x^2y + 2xy^2</math>          D) <math>2x^2y + 8xy^2 - 6y^2</math></p>	<p>Add like terms          Level 1-No Calculator</p>
8	$2x(3x + 5) + 3(3x + 5) = ax^2 + bx + c$ <p>In the equation above, <math>a</math>, <math>b</math>, and <math>c</math> are constants. If the equation is true for all values of <math>x</math>, what is the value of <math>b</math> ?</p>	<p>Combining like terms          Level 1-No Calculator</p>
9	$\begin{array}{l} 3x^2 - 5x + 2 \\ 5x^2 - 2x - 6 \end{array}$ <p>Which of the following is the sum of the two polynomials shown above?</p> <p>A) <math>8x^2 - 7x - 4</math>          B) <math>8x^2 + 7x - 4</math>          C) <math>8x^4 - 7x^2 - 4</math>          D) <math>8x^4 + 7x^2 - 4</math></p>	<p>Combining like terms          Level 1-With Calculator</p>
10	$(-3x^2 + 5x - 2) - 2(x^2 - 2x - 1)$ <p>If the expression above is rewritten in the form <math>ax^2 + bx + c</math>, where <math>a</math>, <math>b</math>, and <math>c</math> are constants, what is the value of <math>b</math> ?</p>	<p>Combining like terms          Level 1-With Calculator</p>
11	<p>If <math>\frac{x-1}{3} = k</math> and <math>k = 3</math>, what is the value of <math>x</math> ?</p> <p>A) 2          B) 4          C) 9          D) 10</p>	<p>Cross Multiply-Rational          Level 1 -No Calculator</p>
12	<p>If <math>\frac{a}{b} = 2</math>, what is the value of <math>\frac{4b}{a}</math> ?</p> <p>A) 0          B) 1          C) 2          D) 4</p>	<p>Cross Multiply-Rational          Level 1 -No Calculator</p>

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13	<p>If <math>\frac{5}{x} = \frac{15}{x+20}</math>, what is the value of <math>\frac{x}{5}</math> ?</p> <p>A) 10</p> <p>B) 5</p> <p>C) 2</p> <p>D) <math>\frac{1}{2}</math></p>	Cross Multiply-Rational Level 1-No Calculator
14	<p>If <math>\frac{7}{9}x - \frac{4}{9}x = \frac{1}{4} + \frac{5}{12}</math>, what is the value of <math>x</math> ?</p>	Cross Multiply-Rational Level 1-No Calculator
15	<p>If <math>\frac{3}{5}w = \frac{4}{3}</math>, what is the value of <math>w</math> ?</p> <p>A) <math>\frac{9}{20}</math></p> <p>B) <math>\frac{4}{5}</math></p> <p>C) <math>\frac{5}{4}</math></p> <p>D) <math>\frac{20}{9}</math></p>	Cross Multiply-Rational Level 1-With Calculator
16	<p style="text-align: center;"><math>3(2x+1)(4x+1)</math></p> <p>Which of the following is equivalent to the expression above?</p> <p>A) <math>45x</math></p> <p>B) <math>24x^2 + 3</math></p> <p>C) <math>24x^2 + 18x + 3</math></p> <p>D) <math>18x^2 + 6</math></p>	FOIL Level 1 -No Calculator

Equations and Expressions- By Category: Level 1

17	$f(x) = \frac{3}{2}x + b$ <p>In the function above, <math>b</math> is a constant. If <math>f(6) = 7</math>, what is the value of <math>f(-2)</math> ?</p> <p>A) -5 B) -2 C) 1 D) 7</p>	Function Level 1 -No Calculator										
18	<p>If <math>f(x) = -2x + 5</math>, what is <math>f(-3x)</math> equal to?</p> <p>A) <math>-6x - 5</math> B) <math>6x + 5</math> C) <math>6x - 5</math> D) <math>6x^2 - 15x</math></p>	Function Level 1-No Calculator										
19	<p>A function <math>f</math> satisfies <math>f(2) = 3</math> and <math>f(3) = 5</math>. A function <math>g</math> satisfies <math>g(3) = 2</math> and <math>g(5) = 6</math>. What is the value of <math>f(g(3))</math> ?</p> <p>A) 2 B) 3 C) 5 D) 6</p>	Function Level 1-With Calculator										
20	<table border="1" data-bbox="363 1188 743 1299"> <tbody> <tr> <td><math>n</math></td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> <tr> <td><math>f(n)</math></td> <td>-2</td> <td>1</td> <td>4</td> <td>7</td> </tr> </tbody> </table> <p>The table above shows some values of the linear function <math>f</math>. Which of the following defines <math>f</math> ?</p> <p>A) <math>f(n) = n - 3</math> B) <math>f(n) = 2n - 4</math> C) <math>f(n) = 3n - 5</math> D) <math>f(n) = 4n - 6</math></p>	$n$	1	2	3	4	$f(n)$	-2	1	4	7	Function Level 1-With Calculator
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<p>21</p>	<p>Which of the following is equal to <math>a^{\frac{2}{3}}</math>, for all values of <math>a</math> ?</p> <p>A) <math>\sqrt{a^{\frac{1}{3}}}</math></p> <p>B) <math>\sqrt{a^3}</math></p> <p>C) <math>\sqrt[3]{a^{\frac{1}{2}}}</math></p> <p>D) <math>\sqrt[3]{a^2}</math></p>	<p>Power rules Level 1-No Calculator</p>
<p>22</p>	$h = -16t^2 + vt + k$ <p>The equation above gives the height <math>h</math>, in feet, of a ball <math>t</math> seconds after it is thrown straight up with an initial speed of <math>v</math> feet per second from a height of <math>k</math> feet. Which of the following gives <math>v</math> in terms of <math>h</math>, <math>t</math>, and <math>k</math> ?</p> <p>A) <math>v = h + k - 16t</math></p> <p>B) <math>v = \frac{h - k + 16}{t}</math></p> <p>C) <math>v = \frac{h + k}{t} - 16t</math></p> <p>D) <math>v = \frac{h - k}{t} + 16t</math></p>	<p>Solving for Variable Level 1-With Calculator</p>
<p>23</p>	$a = 1,052 + 1.08t$ <p>The speed of a sound wave in air depends on the air temperature. The formula above shows the relationship between <math>a</math>, the speed of a sound wave, in feet per second, and <math>t</math>, the air temperature, in degrees Fahrenheit (<math>^{\circ}\text{F}</math>).</p>	<p>Solving for Variable Level 1-With Calculator</p>

Equations and Expressions- By Category: Level 1

	<p>Which of the following expresses the air temperature in terms of the speed of a sound wave?</p> <p>A) <math>t = \frac{a - 1,052}{1.08}</math></p> <p>B) <math>t = \frac{a + 1,052}{1.08}</math></p> <p>C) <math>t = \frac{1,052 - a}{1.08}</math></p> <p>D) <math>t = \frac{1.08}{a + 1,052}</math></p>	
24	$a = 1,052 + 1.08t$ <p>The speed of a sound wave in air depends on the air temperature. The formula above shows the relationship between <math>a</math>, the speed of a sound wave, in feet per second, and <math>t</math>, the air temperature, in degrees Fahrenheit (<math>^{\circ}\text{F}</math>).</p> <p>At which of the following air temperatures will the speed of a sound wave be closest to 1,000 feet per second?</p> <p>A) <math>-46^{\circ}\text{F}</math></p> <p>B) <math>-48^{\circ}\text{F}</math></p> <p>C) <math>-49^{\circ}\text{F}</math></p> <p>D) <math>-50^{\circ}\text{F}</math></p>	Solving for Variable Level 1-With Calculator
25	<p>If <math>t &gt; 0</math> and <math>t^2 - 4 = 0</math>, what is the value of <math>t</math> ?</p>	solving using Sqrt/ sqrd Level 1-No Calculator
26	$\sqrt{2k^2 + 17} - x = 0$ <p>If <math>k &gt; 0</math> and <math>x = 7</math> in the equation above, what is the value of <math>k</math> ?</p> <p>A) 2</p> <p>B) 3</p> <p>C) 4</p> <p>D) 5</p>	solving using Sqrt/ sqrd Level 1-No Calculator

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27	$x + y = 0$ $3x - 2y = 10$ <p>Which of the following ordered pairs <math>(x, y)</math> satisfies the system of equations above?</p> <p>A) <math>(3, -2)</math> B) <math>(2, -2)</math> C) <math>(-2, 2)</math> D) <math>(-2, -2)</math></p>	system of equations Level 1-No Calculator
28	$\frac{x}{y} = 6$ $4(y + 1) = x$ <p>If <math>(x, y)</math> is the solution to the system of equations above, what is the value of <math>y</math> ?</p> <p>A) 2 B) 4 C) 12 D) 24</p>	system of equations Level 1-No Calculator