
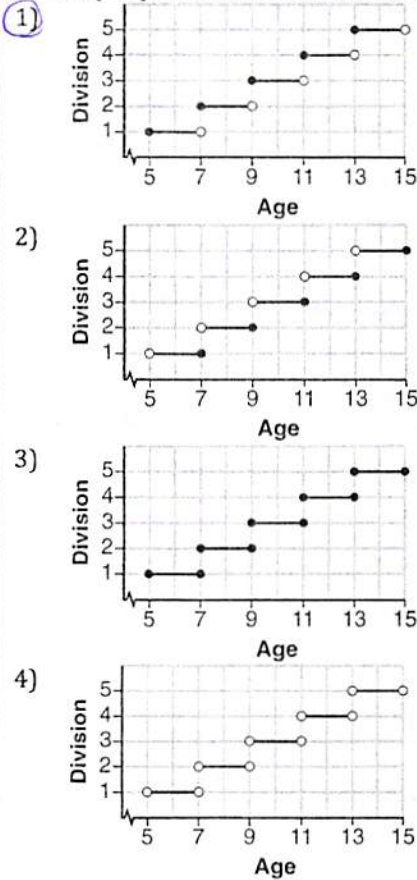


Directions: Choose the best answer. Answer ALL questions. Show ALL work in column 2. If there is no mathematical work to be shown, write an explanation or definition to support your answer!

<p>1) When solving the equation <math>4(3x^2 + 2) - 9 = 8x^2 + 7</math>, Emily wrote <math>4(3x^2 + 2) = 8x^2 + 16</math> as her first step. Which property justifies Emily's first step?</p> <p>① addition property of equality                  2) commutative property of addition                  3) multiplication property of equality                  4) distributive property of multiplication over addition</p>	<p>addition property of equality add opposite or inverse to cancel.                  commutative property - order changes without outcome changing                  multiplicative property of equality - multiply by reciprocal to cancel.                  distribution property: multiply by number outside parentheses.</p>												
<p>2) The ages of three brothers are consecutive even integers. Three times the age of the youngest brother exceeds the oldest brother's age by 48 years. What is the age of the youngest brother?</p> <p>1) 14                  2) 18                  3) 22                  ④ 26</p> <p style="text-align: center;">Your answer must be <u>even</u>!</p>	<p>Make a table                  Write your Let statement &amp; Equation here</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tbody> <tr> <td style="padding: 2px;"><math>x</math></td> <td style="padding: 2px;">1<sup>st</sup> cons. event#</td> <td style="padding: 2px;">(26)</td> <td style="padding: 2px;"><math>3(\text{youngest}) = \text{oldest} + 48</math></td> </tr> <tr> <td style="padding: 2px;"><math>x+2</math></td> <td style="padding: 2px;">2<sup>nd</sup> cons. event#</td> <td style="padding: 2px;">(28)</td> <td style="padding: 2px;"><math>3x = x + 4 + 48</math></td> </tr> <tr> <td style="padding: 2px;"><math>x+4</math></td> <td style="padding: 2px;">3<sup>rd</sup> cons. event#</td> <td style="padding: 2px;">(30)</td> <td style="padding: 2px;"><math>3x = x + 52</math></td> </tr> </tbody> </table> <p style="margin-left: 20px;"> <math display="block">\begin{array}{r} -x \quad -x \\ \hline \frac{2x}{2} = \frac{52}{2} \quad x = 26 \end{array}</math>                 The youngest brother is 26             </p>	$x$	1 <sup>st</sup> cons. event#	(26)	$3(\text{youngest}) = \text{oldest} + 48$	$x+2$	2 <sup>nd</sup> cons. event#	(28)	$3x = x + 4 + 48$	$x+4$	3 <sup>rd</sup> cons. event#	(30)	$3x = x + 52$
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<p>3) Write the three ways to express the inequality represented in the accompanying graph?</p> 	<p>Interval Notation: <u><math>(-3, 4]</math></u></p> <p>Single Inequality: <u><math>-3 &lt; x \leq 4</math></u></p> <p>Compound Inequality <u><math>x &gt; -3</math> and <math>x \leq 4</math></u>                  (Connect with and or or)</p>												
<p>4) Julia went to the movies and bought <u>one jumbo popcorn</u> and <u>two chocolate chip cookies</u> for \$5.00. Marvin went to the same movie and bought <u>one jumbo popcorn</u> and <u>four chocolate chip cookies</u> for \$6.00. Write the system of equations. <b>Do Not Solve.</b></p> <p style="text-align: right;">↑ means more than one equation</p>	<p>Let <math>p</math> = cost of popcorn  <math>C</math> = cost of choc. cookies</p> <p style="margin-left: 20px;"> <math display="block">\begin{aligned} 1p + 2c &amp;= 5.00 \\ 1p + 4c &amp;= 6.00 \end{aligned}</math> </p>												
<p>5) Ryan can sell <u>no more than 400 raffle tickets</u> for a school fundraiser. His goal is to make <u>at least of \$1200</u> in sales. To win Beats headphones, you must purchase a <u>15 red ticket</u>. To win an Kindle, you must purchase a <u>\$2 blue ticket</u>. If <math>r</math> represents the number of red tickets and <math>b</math> represents the number of blue tickets, which system of inequalities represents this situation?</p> <p>Annotate to justify you answer choice.                  no more than <math>\leq</math>                  at least <math>\geq</math></p>	<p>(1) <math>r + b \geq 400</math> and <math>5r + 2b \leq 1200</math>                  ② <math>r + b \leq 400</math> and <math>5r + 2b \geq 1200</math>                  (3) <math>r + b \geq 400</math> and <math>5r + 2b \geq 1200</math>                  (4) <math>r + b \leq 400</math> and <math>5r + 2b \leq 1200</math></p>												

6) Vince can start wrestling at age 5 in Division 1. He remains in that division until his next odd birthday when he is required to move up to the next division level. Which graph correctly represents this information?



Step Functions

○ circle, not included allows us to pass through

● circle, included you can not pass through

7) Harry has a data plan that costs \$10.95 per month plus \$.25 per gigabyte he uses. Nicole has a data plan that costs \$12.45 per month plus \$.15 per gigabyte she uses. For what number of gigabytes do the two plans cost the same?

$g = \#$  of gigabytes ↙ means to set equal to each other.

Harry  $10.95 + .25g$

Nicole  $12.45 + .15g$

$$10.95 + .25g = 12.45 + .15g$$

$$-10.95 \quad -10.95$$


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$$.25g = 1.50 + .15g$$

$$-.15g \quad -.15g$$


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$$.10g = 1.50$$

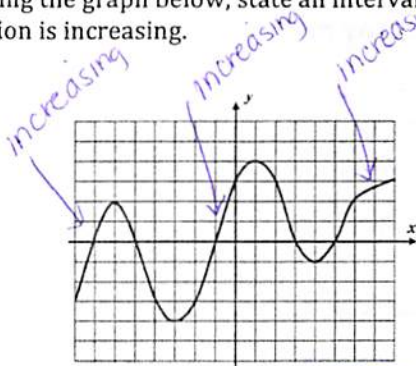
$$.10 \quad .10$$


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$g = 15$

At 15 gigabytes the plans will cost the same.

8) Using the graph below, state an interval at which the function is increasing.

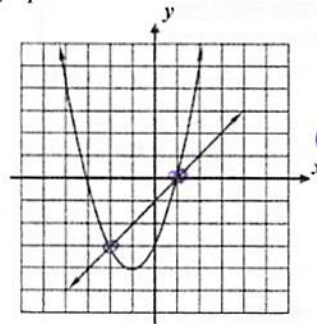


$8 \leq x < 6$  or  $-3 < x < 1$  or  $4 < x \leq 8$

#'s come from domain or x-axis

Inequality symbols always go in the same direction

9) The quadratic function,  $f(x)$  and the linear function  $g(x)$  are graphed below. For what values of  $x$  does  $f(x)=g(x)$ ?



$(1, 0)$  and  $(-2, -3)$

$x = 1$

$x = -2$

or  $\{-2, 1\}$

Look for where the functions intersect each other.