

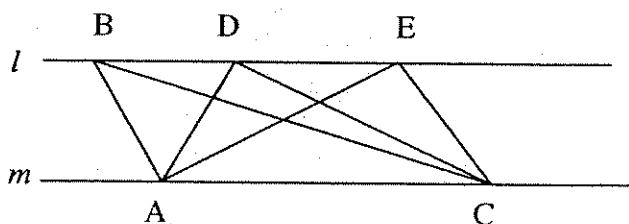




10. A student takes a 30-question math test where they got  $n$  questions correct,  $m$  questions incorrect and they left  $k$  questions blank. If correct answers are worth 4 points, incorrect answers are worth -1 points and blank answers worth zero points, write an expression to describe the student's total score.
- a.  $n-4m+k$       b.  $n+m+k=30$       c.  $n-m$       d.  $4n-m$       e.  $n+m+k$
11. How many ways can you make change for a quarter using pennies, nickels and dimes?
- a. 2      b. 3      c. 9      d. 10      e. 12
12. Suppose a bag contains the three letters of the word "mom." If you take one letter out at a time and line them up from left to right as you pick them up, what is the probability that you will spell the word "mom?"
- a.  $1/6$       b.  $1/4$       c.  $1/3$       d.  $1/2$       e. 1
13. Today is March 16<sup>th</sup> which is a Thursday. On what day of the week will August 2<sup>nd</sup> fall?
- a. Monday      b. Wednesday      c. Friday      d. Sunday      e. None of the previous choices.
14. 450 students are surveyed as they enter the cafeteria about which subjects they liked. Every other student liked math, every third student liked English and every fifth student liked Art. How many students did not like math nor art nor English?
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- a. 120      b. 105      c. 315      d. 135      e. 150



20. Given that the lines  $l$  and  $m$  are parallel, which of the three triangles has the greatest area,  $\triangle ABC$ ,  $\triangle ADC$ ,  $\triangle AEC$ ?



- a.  $\triangle ABC$     b.  $\triangle ADC$     c.  $\triangle AEC$     d. The areas are all the same.    e. There is not enough information.
21. If the altitude (height) of an isosceles triangle equals the base and each is numerically equal to the area, what is the area?
- a. 2 units<sup>2</sup>    b. 1 units<sup>2</sup>    c. 8 units<sup>2</sup>    d. 4 units<sup>2</sup>    e. 16 units<sup>2</sup>
22. If  $\frac{x}{y} = \frac{3}{2}$  and  $\frac{y}{z} = \frac{2}{7}$ , then what does  $\frac{x}{z}$  equal?
- a.  $\frac{4}{21}$     b.  $\frac{7}{3}$     c.  $\frac{21}{4}$     d.  $\frac{5}{14}$     e.  $\frac{3}{7}$
23. A reservoir has vertical sides measuring 20 meters and a rectangular base that measures 30 meters by 40 meters. At the beginning of the summer the reservoir was filled to capacity. At the end of the summer the water depth was 4 meters. How much water was used?
- a. 19,200 m<sup>3</sup>    b. 4,800 m<sup>3</sup>    c. 28,800 m<sup>3</sup>    d. 4,640 m<sup>3</sup>    e. 24,000 m<sup>3</sup>



29. Suppose it takes  $h$  minutes to fill a bath tub using the hot water faucet and  $c$  minutes to fill the same tub using the cold water faucet. Starting with an empty tub, the hot water faucet is turned on and then after 1 minute, the cold water faucet is also turned on. How long will it take to fill the tub?

a.  $\frac{h+(c-1)}{2}$       b.  $\frac{h(c+1)}{2}$       c.  $\frac{h(c+1)}{h+c}$       d.  $\frac{hc}{c+h}$       e.  $\frac{hc}{h+c}-1$

30. Find  $x$  if  $x + \sqrt{x + \sqrt{x + \sqrt{x + \dots}}} = 2$

a.  $\pm\sqrt{2}$       b.  $2 \pm \sqrt{2}$       c.  $\frac{1}{2}$       d.  $2 \pm 2i\sqrt{2}$       e.  $2 - \sqrt{2}$