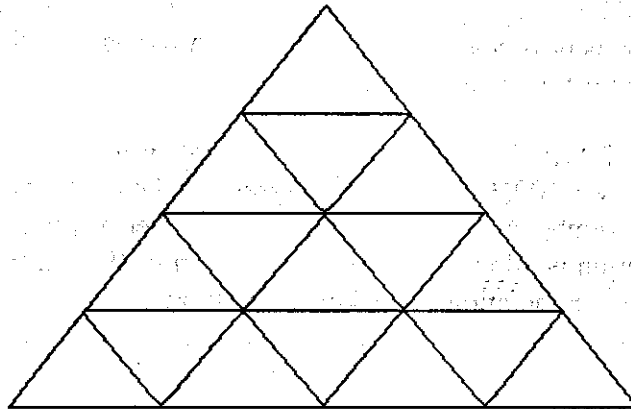


2003 Palm Harbor Invitational Team Questions

- 1) $A = (x - 2) + (x + 3) - (7x + 2)$ when $x = -1$
 $B = z[(x - 4)y]^2$ when $x = 6$, $y = 32$, and $z = 0$
 $C = xy - 2x + 3y$ when $x = 3$ and $y = 7$
 $D = (x + y)^2 + (y + z)^2$ when $x = 2$, $y = 3$, and $z = 4$
What is $A + B + C + D$?
- 2) Simplify: $7(3a^3 - 4a + 9) - 3(2a^2 + 3) + (3 + a)^2$
- 3) Lydia's SAT score was 60 points higher than Hannah's, but 30 points lower than Stephanie's. Hannah's score was 1350.
 $A =$ The mean of the three scores
 $B =$ The range of the three scores
 $C =$ The median of the three scores
 $D = A + B + C$
Find: $B^2 - 2(A + D) + C$
- 4) Given: $a + 2b + c = 16$
 $b = 2c - 18$
 $5c = 5a - 20$
Find the average of a , b , and c .
- 5) What is the perimeter of the square formed by the points $(2, -1)$, $(-2, -4)$, $(-5, 0)$, and $(-1, 3)$?
- 6) What is the exact sum of all the solutions to the following equations?
 $(x - 2)^2 = 16$ $|2x + 3| = 11$
 $x + 4 = 9$ $x^2 + 4x = -3$
- 7) Below are six statements. If the statement is true, its value appears next to it in parenthesis. If it is false, its value is 0. Find the product of the values that correspond to the true statements.
- (13) All whole numbers are included in the set of natural numbers.
(15) Natural numbers are the set $\{0, 1, 2, \dots\}$
(17) All integers are rational numbers.
(20) $\sqrt{-4}$ is an imaginary number.
(23) π is a rational number.
(16) The set of integers is the set that contains all natural numbers along with their additive inverses.

- 8) How many triangles can be found in the given diagram?



- 9) Given the letters of the words "PALM HARBOR"
 A = the probability of a vowel being drawn on the second draw without replacement.
 B = the probability of a consonant being drawn on the second draw without replacement.
 C = the probability that two vowels in a row are drawn without replacement.
 D = the probability that two consonants in a row are drawn without replacement.

Find: $\frac{A}{B} - \frac{C}{D}$ (leave your answer as a fraction)

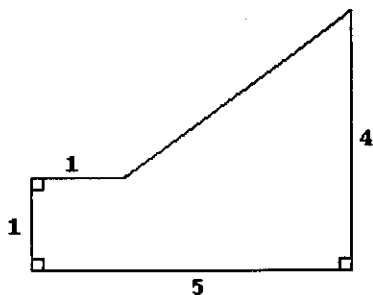
- 10) Wal-Mart has a sale on pens and pencils with the following prices:

Pencils	Pens
\$0.10 per 1 pencil	\$0.30 per 1 pen
\$0.75 per 10 pencils	\$1.80 per 12 pens
\$1.25 per 25 pencils	\$3.00 per 30 pens

Brianna, going back to school in 2 days, decides she needs 10 pencils and 5 pens for each of her five non-math oriented class, i.e. Spanish, English, Science, Geography, and Typing, and 15 pencils and 10 pens for her Algebra I course. What is the least amount she would spend if she bought the exact amount of pens and pencils she needs if she went to the sale at Wal-Mart?

11) $A = \frac{1}{7}(6^3 - 5^3) - \frac{1}{5}\sqrt{7^2 + 24^2} - 18 \div 3$

B = The area of the given figure:



$C = \frac{x}{2}$ if $\sqrt{3x-2} = 4$

Find: $B - (A + C)$

12) A ball follows the path given by the graph: $h = -0.9t^2 + 3.5t$ where h represents the height of the ball and t represents the time in seconds. The ball starts at $h = 0$. How many seconds pass when the ball returns to $h = 0$ again? (Round your answer to the nearest tenth of a second)

13) The population of duckbilled platypuses in Luxembourg is modeled by the following graph: $y = 100(1.04)^x$ where y represents the number of duckbilled platypuses in Luxembourg and x represents the number of years after 1973 ($x = 0$ used in the equation would represent the population in 1973, $x = 1$ in 1974). What would be the population of duckbilled platypuses in Luxembourg in the year 2013? (Round your answer to the nearest whole platypus.)

14) Solve for g : $\frac{1}{g} - \frac{3}{2g} + 4 = \frac{5}{2g}$

15) What is the sum of the first 35 natural numbers?