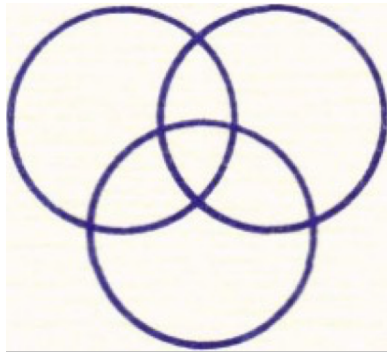


# Broward County Council of Teachers of Mathematics



Annual Contest  
2016

Pre-Algebra 6  
Grade 8



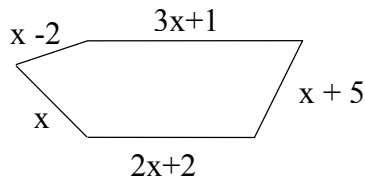




(19) If  $\sqrt{x+7} = 2 + \sqrt{x}$ , what is the value of  $x$ ? Express your answer as a common fraction.

- (A)  $\frac{5}{8}$       (B)  $\frac{9}{16}$       (C)  $\frac{3}{4}$       (D)  $\frac{4}{10}$       (E) NOTA

(20) Given that  $x=4$ , how many units are in the perimeter of the polygon?



- (A) 38      (B) 47      (C) 50      (D) 53      (E) NOTA

(21) What is the difference, expressed as a percent of the original price, between a 20% discount followed by a 30% discount and a straight 45% discount?

- (A) 1      (B) 7      (C) 10      (D) 15      (E) NOTA

(22) Evaluate:  $\sqrt{3! \cdot 4!}$

- (A) 4      (B) 7      (C) 12      (D) 18      (E) NOTA

(23) In some languages, every consonant must be followed by a vowel. How many seven-letter "words" can be made from the Hawaiian word MAKALA if each consonant must be followed by a vowel?

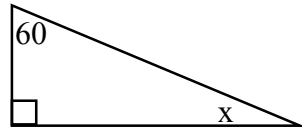
- (A) 15      (B) 18      (C) 20      (D) 24      (E) NOTA

(24) Marti lives in New York and wishes to call her friend Kathy who lives in Honolulu. The chart below shows the times in several cities when it is 12:00 noon in New York. If Marti calls Kathy when the time is 6:30 p.m. in New York, what time is it in Honolulu?

City	Time when it is 12:00 noon in New York
Chicago, IL	11:00 AM
Denver, CO	10:00 AM
Los Angeles, CA	9:00 AM
Honolulu, HI	7:00 AM

- (A) 1:00pm      (B) 1:30pm      (C) 2:00pm      (D) 2:30pm      (E) NOTA

(25) How many degrees are in the sum of the complementary and supplementary of  $x$ ?



- (A) 180      (B) 210      (C) 250      (D) 360      (E) NOTA

(26) The faces of a tetrahedron are numbered 1, 2, 3 and 4. Two such tetrahedra are tossed, and the numbers on the bottom faces are added. What is the most likely sum?

- (A) 2      (B) 3      (C) 5      (D) 8      (E) NOTA

(27) How many natural numbers greater than 6 but less than 60 are relatively prime to 15?

- (A) 15      (B) 20      (C) 29      (D) 36      (E) NOTA

(28) For what value of  $x$  does  $3^{14} = \left(\frac{1}{9}\right)^x$ ?

- (A)  $-5$       (B)  $-7$       (C) 5      (D) 7      (E) NOTA

(29) In a saving account, \$5000 is invested at an annual rate of 9% simple interest. How many dollars would have to be invested at 7.5% simple interest to earn an equal amount of interest?

- (A) 3000      (B) 4000      (C) 5000      (D) 6000      (E) NOTA

(30) If  $\frac{a}{4-a} = \frac{b}{5-b} = \frac{c}{7-c} = 3$ , what is the value of  $a + b + c$ ?

- (A) 9      (B) 12      (C) 20      (D) 22      (E) NOTA