

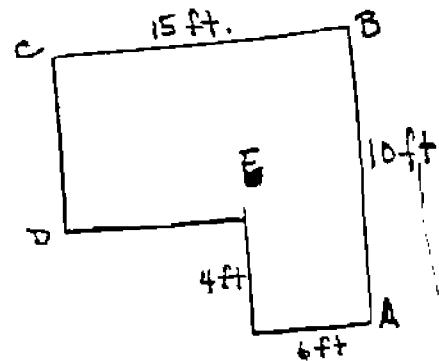
1996 Hoover High School  
Mathematics Tournament  
Seventh Grade Written Test

- 0.07 is  $28\frac{5}{6}\%$  of what number?  
a) 0.2428      b) 0.0201      c) 1.8081      d) 0.25      e) none of these
- $12\frac{1}{4}$  is what fraction of  $33\frac{2}{3}$ ?  
a)  $\frac{49}{101}$       b)  $\frac{196}{303}$       c)  $\frac{3}{8}$       d)  $\frac{147}{404}$       e) none of these
- Find the sum of 2.3463 rounded to the nearest hundredth, 27.125 rounded to the nearest tenth and 0.06329 rounded to the nearest thousandth.  
a) 29.614      b) 29.513      c) 29.534      d) 56.9      e) none of these
- Rae and Laura bought the new 90 cm sour straw at the candy store. They divided it into a 7 to 11 ratio. Then Laura took the smaller part and divided it into a 3 to 5 ratio. Laura kept the smallest part. How many centimeters did she keep?  
a) 5 cm      b) 35 cm      c)  $13\frac{1}{8}$  cm      d)  $4\frac{3}{8}$  cm      e) none of these
- A movie house sold 800 tickets for a total of \$4150. If the tickets were sold for \$4.50 and \$6.50, how many \$6.50 tickets were sold?  
a) 275      b) 525      c) 328      d) 650      e) none of these
- Lenore is running at the rate of  $7\frac{1}{2}$  miles per hour. How many feet per second is she running?  
a) 220      b) 11      c) 660      d) 19      e) none of these
- A sailor walks 204 ft. due north away from the beach. Then he walks 115 ft. due east, 190 ft. due south, 198 ft. due west and 14 ft. due south. How far from his original starting point is he?  
a) 115      b) 14      c) 83      d) 69      e) none of these
- The leader of the archaeology team found these fractions on an ancient document:  $\frac{5}{8}, \frac{8}{13}, \frac{21}{34}$ . What is the missing fraction in the pattern?  
a)  $\frac{16}{26}$       b)  $\frac{13}{21}$       c)  $\frac{15}{24}$       d)  $\frac{10}{16}$       e) none of these
- If  $A = \{1,3,5,7,9\}$  and  $B = \{1,9,10,15,20\}$  and  $C = \{2,4,7,9,10\}$  find the product of the elements of  $(A \cup C) \cap B$ .  
a) 90      b) 2700      c) 19      d) 567      e) none of these

10. Justin kept track of his daily use of time for a month -- sleeping: 8 hrs.; study:  $2\frac{1}{2}$  hrs.; recreation: 3 hrs.; school: 7 hrs.; eating:  $1\frac{1}{2}$  hrs.; other 2 hrs. How many degrees are in the central angle of a circle graph for the amount of time studying?
- a)  $120^\circ$       b)  $22\frac{1}{2}^\circ$       c)  $37\frac{1}{2}^\circ$       d)  $60^\circ$       e) none of these
11. A group gathers at 9:00 P.M. to watch fireworks. Over the next three half hours the crowd doubles, increases by 10, and increases by 30 to a total of 70 people. How many people are there at 9:00 P.M.?
- a) 10      b) 40      c) 30      d) 15      e) none of these
12. Mr. Godwin is tiling an 8 ft. by 8 ft. floor with circular tiles. Each tile has a radius of  $\frac{1}{2}$  ft. He fills in between the tiles with cement. How many square feet of the floor will be covered with cement?
- a)  $(64 - 16\pi)$       b)  $(64 - 64\pi)$       c)  $16\pi$       d)  $64\pi$       e) none of these
13. The measures of the angles of an isosceles triangle are in the ratio 3:3:2. Find the measure of the smaller angle.
- a)  $22\frac{1}{2}^\circ$       b)  $60^\circ$       c)  $30^\circ$       d)  $45^\circ$       e) none of these
14. Paul scored 28 points in last night's basketball game. This was  $\frac{2}{9}$  less than his all time high. What was the total number of points for the two games.
- a) 61      b) 64      c)  $62\frac{2}{9}$       d) 73      e) none of these
15. Two equilateral triangles have perimeters 6 and  $9\sqrt{3}$ . The ratio of their areas is:
- a)  $2:3\sqrt{3}$       b)  $2\sqrt{3}:9$       c) 4:27      d) 4:9      e) none of these
16. How many ways can the letters of the word MONOPOLY be arranged?
- a) 6720      b) 40,320      c) 29      d) 720      e) none of these
17. If  $y = \frac{6x^2 + x}{2x^2 - 9x + 9}$ , find  $f(-3)$ .
- a)  $\frac{17}{18}$       b)  $\frac{57}{36}$       c) 1      d)  $-\frac{17}{57}$       e) none of these
18. The sum of the digits of a three digit number is 17. The units digit is 1 more than the tens digit. If the number is 2 less than 40 times the tens digit, find the number.
- a) 179      b) 278      c) 467      d) 656      e) none of these

19. On a school flag the ratio of stars to stripes is 4 to 1. The ratio of stripes to yellow stripes is 5 to 3. What is the ratio of stars to yellow stripes?
- a) 20:1      b) 5:1      c) 20:3      d) 12:5      e) none of these
20. Jennifer has \$12,000 invested at 5.5%. How much additional money must she invest at 8% in order that her total annual income may equal 7% of the entire investment?
- a) \$84,000      b) \$66,000      c) \$12,000      d) \$18,000      e) none of these
21. If the 1st term of an arithmetic sequence is -6 and the 29th term is 50, what is the common difference of the terms of the progression?
- a) 2      b) 3      c)  $3\frac{1}{2}$       d) 4      e) none of these
22. Simplify:  $1 + \frac{1}{2 + \frac{1}{2 + \frac{1}{2 + \frac{1}{2}}}}$
- a)  $\frac{3}{2}$       b)  $\frac{7}{12}$       c)  $\frac{41}{29}$       d)  $\frac{19}{12}$       e) none of these
23. If a spherical scoop of ice cream with diameter 6 cm melts into its sugar cone of diameter 5 cm and height 12 cm. How much of the ice cream will be overflowing into your hand? (in terms of  $\pi$ )
- a)  $13\pi$       b)  $11\pi$       c)  $36\pi$       d)  $38\pi$       e) none of these
24. A committee of 5 students is to be selected from a group of 6 boys and 7 girls. What is the probability that the committee will have at least 3 boys?
- a)  $\frac{41}{1287}$       b)  $\frac{59}{143}$       c)  $\frac{175}{429}$       d)  $\frac{3}{42}$       e) none of these

25. A goat tethered with a 15 ft. rope at point C at the corner of the shed shown on the right. What is the grazing area for the goat? (in terms of  $\pi$ )



- a)  $\frac{675\pi}{4}$       b)  $225\pi$       c)  $144\pi$       d)  $189\pi$

Tie Breakers:

- TB1 The arithmetic mean of five numbers is 2. If the smallest of the five numbers is deleted from the set, the average of the remaining numbers is 4. What is the smallest number of the original set?
- TB2 What is the units digit of  $3^{999}$ ?
- TB3 Twenty Km/hr is how many cm/15min?