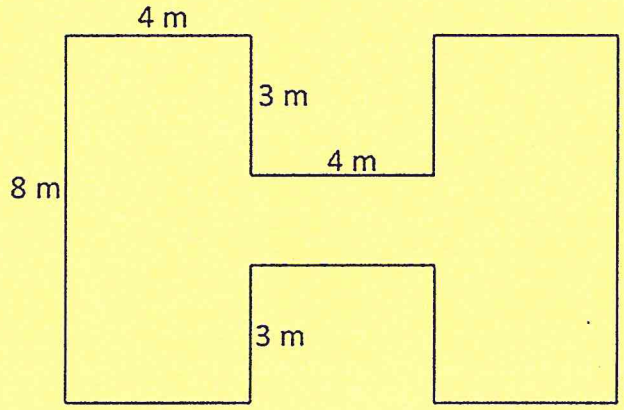
Dick Schaff Math Superbowl XLIII
Level 2: 8th Grade Huddle – 2016

Directions: (1) Select the most correct answer for each question and mark it on the answer form.
(2) No calculators of any sort are allowed.
(3) Note that N.O.T. means "None of these."

1. Mary's car makes 8.5 kilometers on each liter of gas. How far does the car go on 60 liters of gas?

a) 5.1 km b) 85 km c) 255 km d) 510 km e) N.O.T.

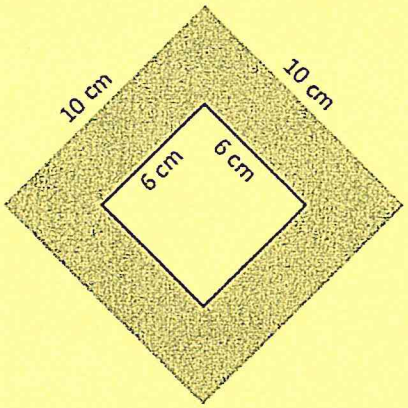
2. The image shows the foundation of a new community center. What would be the volume of the community center if it was surrounded by 2.1 meter high walls?



a) 46.2 m^3 b) 72 m^3 c) 134.4 m^3 d) 151.2 m^3 e) N.O.T.

3. How big is the shaded area in the diagram to the right?

a) 100 cm^2 b) cm^2
c) 36 cm^2 d) 1362 cm^2
e) N.O.T.



4. Fredrick, Lisa, and Jacob each have the same amount of baseball cards. Fredrick divides his into 6 same-sized piles. Lisa divides hers into 4 same-sized piles. Jacob divides his into 9 same-sized piles. Which of the following could be the number of baseball cards that each child has?

a) 72 b) 81 c) 84 d) 90 e) N.O.T.

Questions 5 and 6 use the following situation: In a fundraising for their end of the school year trip, the student association sold 4500 raffle tickets. One third of the raffle tickets wins a prize. One fifth of the prizes is a airplane ticket.

5. How many of the prizes are airplane tickets?

a) 120 b) 150 c) 200 d) 300 e) N.O.T.

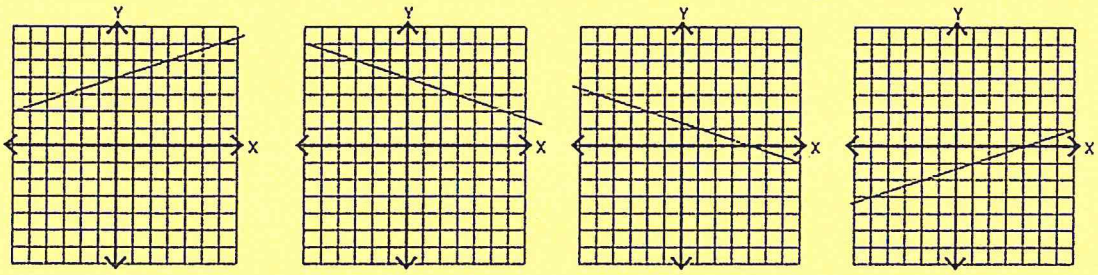
6. What portion of the raffle tickets gives an airplane ticket?

a) $\frac{1}{5}$ b) $\frac{1}{9}$ c) $\frac{1}{15}$ d) $\frac{3}{8}$ e) N.O.T.

7. The Sweater Factory is having a sale. Every day, they lower the price of the sweaters by 10%. On Monday the sweater costs $45. What will it cost on Wednesday?

a) $27 b) $32.50 c) $36.45 d) $40.40 e) N.O.T.

8. Which of the following is the graph of a line with slope $\frac{1}{3}$ and y-intercept (0,4)?



a) b) c) d) e) N.O.T.

9. If $a > b$ and $b = c + 1$, then

a) $a = c$ b) $a \leq c$ c) $a > c$ d) $a < c$ e) N.O.T.

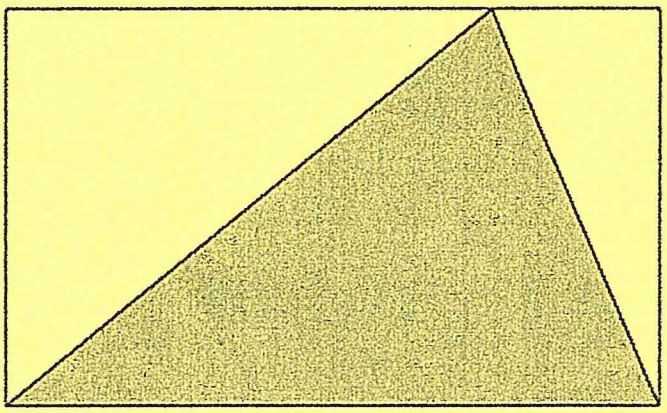
10. If $4 + 2(3x - 4) = 8$, then $3x - 4 =$

a) 2 b) 4 c) 6 d) 8 e) N.O.T.

11. Of the numbers below, which one is the smallest?

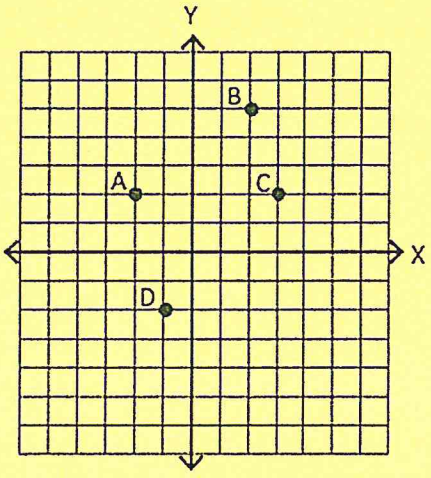
a) $\sqrt{0.02}$ b) $\frac{1}{6}$ c) 0.151515 d) $-3\left(-\frac{1}{30}\right)$ e) N.O.T.

12. In the figure to the right, quantity A is the shaded area, and quantity B is the entire unshaded area. Which of the following statements is correct?



a) A is larger than B
b) A and B are equal
c) B is larger than A
d) Not enough information
e) N.O.T.

13. Consider the linear equation $y = 2x - 4$. Which point in the figure to the right is on the line?



a) A b) B
c) C d) D
e) N.O.T.

14. What is the simplest form of $\dfrac{\frac{2}{3} \cdot \frac{3}{5}}{\frac{3}{4} / \frac{5}{6}}$?

a) $\frac{4}{9}$ b) $\frac{9}{25}$ c) $\frac{54}{150}$ d) $\frac{60}{135}$ e) N.O.T.

15. Joe planted magic beans at 8:00 PM. He went to bed, and at 8:00 AM the next morning a beanstalk had grown. The beanstalk grew 10 inches a minute on average. Assuming it started growing immediately after the seeds had been planted, how tall was the beanstalk at 8:00 AM?

a) 720 inches b) 7,200 inches c) 72,000 inches d) 720,000 inches e) N.O.T.

16. What is the beanstalk's circumference in the height of 500 feet, if the circumference is 20 inches down by the roots, and the circumference decreases by 0.22 inches every 100 inches in height?

a) 4.16 inches b) 2.2 inches c) 13.2 inches d) 6.8 inches e) N.O.T.

17. Maria mixes her own cereal daily. She uses 60 g of oatmeal, 40 g of corn flakes, 35 g of raisins, 20 g of peanuts, and 15 g of sunflower seeds. What percentage of the cereal are raisins?

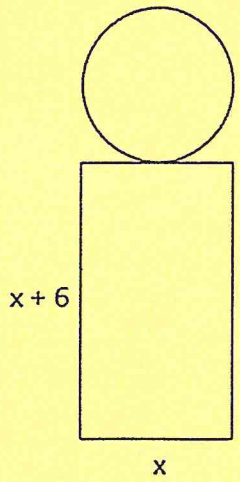
a) 17.65% b) 20.59% c) 21.21% d) 23.53% e) N.O.T.

18. An island has two kinds of inhabitants, *knights, who always tell the truth*, and their opposites, *knaves, who always lie*. You encounter two people on the island, A and B. What are A and B if A says: "B is a knight," and B says: "The two of us are opposite types"?

a) A is a knight and B is a knave
b) A is a knave and B is a knight
c) A and B are of the same kind
d) Not enough information
e) N.O.T.

19. What is the area of the circle, if the perimeter of the rectangle is 44 cm? Approximate π with 3.14 if you need to use it.

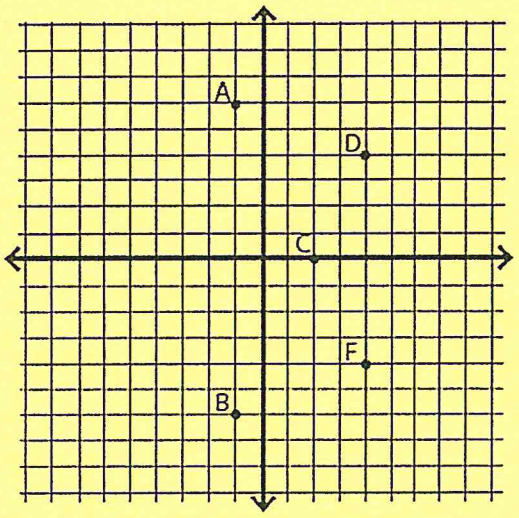
a) 20 cm^2
b) 44 cm^2
c) 5.024 cm^2
d) 201.06 cm^2
e) N.O.T.



20. We have two linear equations:
K: $y = 2x - 4$ and L: $y = -2x + 4$

Which of the following statements is correct?

a) The points B and F lie on K
b) The points A and F lie on L
c) D is the intersection of K and L
d) F is the intersection of K and L
e) N.O.T.



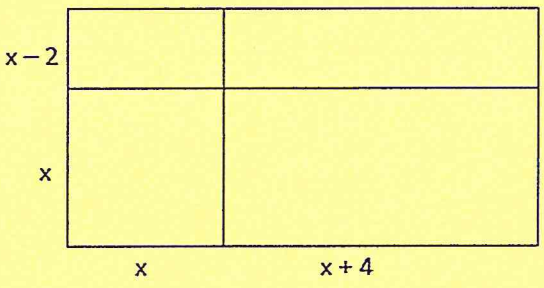
21. At Meadows Jr. High School, $\frac{9}{10}$ of the students play one or more sport. The portion of students playing more than one sport is $\frac{1}{6}$. What portion of students plays exactly one sport?

a) $\frac{1}{2}$ b) $\frac{2}{3}$ c) $\frac{11}{15}$ d) $\frac{3}{20}$ e) N.O.T.

22. If the diagonal of a square has a length of 16 inches, what is the length of each side?

a) $8\sqrt{2}$ inches b) $4\sqrt{2}$ inches c) 8 inches d) 4 inches e) N.O.T.

23. What is x if the outer perimeter of the picture is 68?

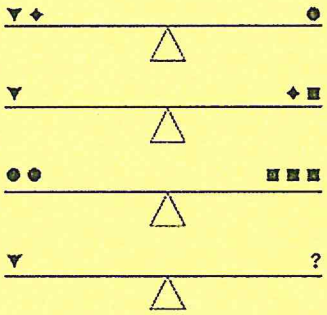


a) 6 b) 10 c) 12 d) 20 e) N.O.T.

24. A California farm has geese, pigs, and sheep. All of the sheep have two horns each. When all the animals get together, you count 33 animal heads. You see more than 40 horns, there are twice as many pigs as there are geese, and there are less than 10 pigs. There is one pig for every four sheep. You see 126 feet. How many pigs are on the farm?

a) 5 b) 6 c) 7 d) 8 e) N.O.T.

25. How many ◆ are needed for ? to balance the scale?



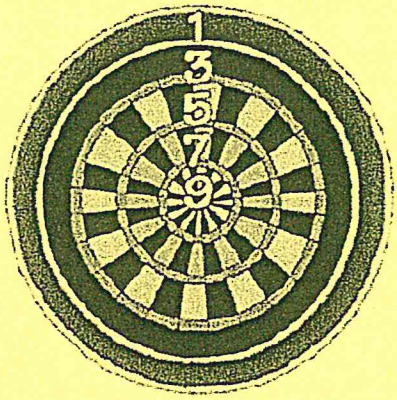
a) 5 b) 4 c) 3 d) 2 e) N.O.T.

26. In the following table each letter represents a digit. Each three consecutive numbers add up to 19. S represents what digit?

4	P	Q	R	S	T	U	V	8	W

a) 5 b) 6 c) 7 d) 8 e) N.O.T.

27. Lucy was playing darts. She threw all six darts and got points in each throw. You can get 1, 3, 5, 7, or 9 points in each throw, depending on where the dart lands. Which of the following outcomes can be Lucy's total points?



a) 17 b) 28
c) 29 d) 56
e) N.O.T.

28. What is the smallest positive number that is divisible by the first nine positive integers?

a) 1,680 b) 362,880 c) 15,120 d) 2,502 e) N.O.T.

29. Jennifer read the first 14 pages of a book at the bookstore and decided to buy it. Since she bought it, she has been reading 22 pages per day. For which of these functions does y represent the total number of pages Jennifer has read if x represents the number of days that have passed since she purchased the book?

a) $x = 14y + 22$ b) $x = 22y + 14$ c) $y = 14x + 22$ d) $y = 22x + 14$ e) N.O.T.

30. What is the mean of the first five positive integers that have exactly three divisors?

a) 18 b) 13.5 c) 16 d) 20.2 e) N.O.T.