

Answer questions 1-35 on your Scantron.

Questions 1-30 will be scored for the Power Bowl event. In the event of a tie, questions 31-35 will be used as the tiebreaker.

1. If $a = -2$, the largest number in the set $\{-3a, 4a, \frac{24}{a}, a^2, 1\}$ is:

a. $-3a$ b. $4a$ c. $\frac{24}{a}$ d. a^2 e. 1

2. A square and a triangle have equal perimeters. The lengths of the three sides of the triangle are 6.2 cm, 8.3 cm, and 9.5 cm. The area of the square is:

a. 24 cm^2 b. 36 cm^2 c. 68 cm^2 d. 64 cm^2 e. 144 cm^2

3. If you walk for 45 minutes at a rate of 4 mph and then run for 30 minutes at a rate of 10 mph, how many miles have you gone at the end of one hour and 15 minutes?

a. 3.5 miles b. 8 miles c. 9 miles d. 480 miles e. NG

4. Mr. Green receives a 10% raise every year. His salary after four such raises has gone up by what percent?

a. 40% b. 44% c. 45% d. More than 45% e. NG

5. A contest began at noon one day and ended 1000 minutes later. At what time did the contest end?
- a. 10:00 p.m. b. Midnight c. 2:30 a.m. d. 4:40 a.m. e. NG
6. Martians measure angles in clerts. There are 500 clerts in a full circle. How many clerts are there in a right angle?
- a. 90 b. 100 c. 125 d. 180 e. NG
7. The difference between the lowest common multiple and greatest common divisor of the numbers 5, 10, and 35 is:
- a. 1745 b. 35 c. 65 d. 5 e. NG
8. Rearranging the digits of the number 579 produces different numbers. The sum of all such numbers, including 579, is:
- a. 4662 b. 4065 c. 3705 d. 3687 e. NG
9. A bag contains 80 jellybeans, 20 of which are red, 20 are black, 20 are green, and 20 are yellow. The least number that a blindfolded person must eat to be certain of having eaten at least one of each color is:
- a. 61 b. 23 c. 6 d. 5 e. NG

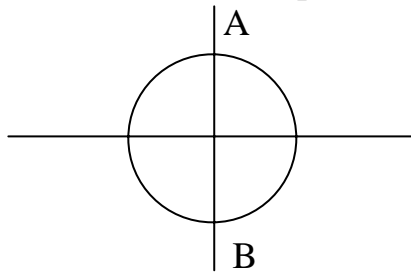
10. While cleaning out a garage, John found four old single-digit house numbers, one 3, one 4, and two 5s. The number of different two-digit house numbers he can create using any two of them is:

- a. 12 b. 5 c. 6 d. 7 e. NG

11. The positive integers are written consecutively in groups of five so that the first row contains 1, 2, 3, 4, 5; the second row 6, 7, 8, 9, 10; etc. The row which has a sum nearest to the value of 150 is the:

- a. 5th row b. 6th row c. 7th row d. 8th row e. 9th row

12. The center of a circle has coordinates of $(0, 0)$. If the coordinates of point A are $(0, 2)$, which coordinates represent point B?



- a. $(-2, 0)$ b. $(0, -2)$ c. $(2, 0)$ d. $(2, 2)$ e. NG

- 13.** A man plants twelve rows of beans, each row twenty feet long. The plants in each row are spaced four inches apart. If the first and last plants in each row are four inches from the ends of the row, then the total number of plants is:
- a.** 732 **b.** 720 **c.** 718 **d.** 708 **e.** NG
- 14.** Which of the following numbers has the largest reciprocal?
- a.** 0.5 **b.** 1 **c.** 1989 **d.** 1990 **e.** 5000
- 15.** The total number of digits it takes to number the pages of a book from 1 to 250 inclusive is:
- a.** 637 **b.** 638 **c.** 640 **d.** 644 **e.** NG
- 16.** The point $(4,-3)$ is reflected in the x -axis. The image is then reflected in the y -axis. The coordinates of the point in its final position are:
- a.** $(3,-4)$ **b.** $(-3,4)$ **c.** $(-4,3)$ **d.** $(-4,-3)$ **e.** NG

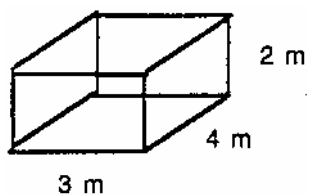
17. Three angles of a pentagon have measures 88° , 124° and 92° . If the measures of the remaining 2 angles are equal, what is the measure, in degrees, of one of the remaining angles?

- a. 118° b. 101° c. 72° d. 28° e. NG

18. If the distance between consecutive fence posts is 5 meters, the number of posts needed to build a fence around a triangular region with sides 20m, 20m, and 30m is:

- a. 15 b. 12 c. 14 d. 16 e. NG

19. What is the surface area of the figure shown?



- a. 52 m b. 52 m^2 c. 52 m^3 d. 52 km^2 e. NG

20. Which of the following is written in scientific notation?

- a. 3.7×10^5 b. 4^5 c. $2 \times 2 \times 3 \times 5$ d. 38.25×10^5 e. NG

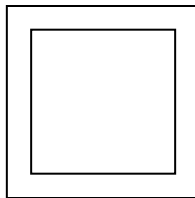
21. Two different numbers are chosen from the sequence of consecutive odd integers 51, 53, 55, ..., 95, 97, 99. Which of the following could *not* be their sum?

- a. 161 b. 168 c. 186 d. 196 e. NG

22. Jack and Jill went to Burger Queen. Jack bought 2 hamburgers and 3 shakes for \$4.21 while Jill bought 3 hamburgers and 2 shakes for \$5.24. The cost of 1 hamburger and 1 shake is:

- a. \$1.03 b. \$1.54 c. \$1.89 d. \$9.45 e. NG

23. In the diagram, the perimeter of the larger square is 20 cm and the perimeter of the smaller square is 16 cm. The area of the region between the two squares is:



- a. 1 cm^2 b. 2 cm^2 c. 4 cm^2 d. 9 cm^2 e. NG

24. If each side of a square is decreased 10%, then the area of the square is decreased by:

- a. 40% b. 20% c. 19% d. 10% e. NG

25. The product of an even number of odd numbers is always:

- a. even b. odd c. prime d. negative e. NG

26. On a scale drawing, 2 centimeters represent 50 meters. How many centimeters represent 5 meters?

- a. 10 cm b. 0.02 cm c. 0.2 cm d. $\frac{1}{10}$ cm e. NG

27. Which of the following *cannot* be the lengths of the three sides of a triangle?

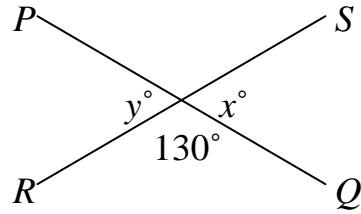
- a. 1,2,4 b. 3,4,6 c. 4,5,7 d. 5,6,8 e. NG

28. $100\% \times 100\% =$

- a. 100% b. 200% c. 1000% d. 10000% e. NG

29.

If, in the figure, \overline{PQ} and \overline{RS} are intersecting line segments, $x + y =$



- a. 50° b. 100° c. 180° d. 260° e. NG

30. If twice my age minus 9 years equals half my age plus 9 years, what is my age?

- a. 99 years b. 18 years c. 12 years d. 9 years e. NG

31. A sequence of numbers is called a *Fibonacci-type Sequence* if each number (after the first two) is the sum of the two numbers which precede it. For example, 1, 1, 2, 3, 5, 8, ... is a *Fibonacci-type Sequence*. If 1985, x , y , 2000 are four consecutive terms in a *Fibonacci-type Sequence*, then x equals:

- a. 1990 b. 1995 c. 1999 d. $7\frac{1}{2}$ e. NG

32. If $\frac{1}{2x+3} = \frac{2}{5}$, then $\frac{1}{2x+1} =$

- a. 2 b. $\frac{3}{2}$ c. $\frac{2}{3}$ d. $\frac{1}{2}$ e. NG

33. The floor of a storage shed is a rectangle with an area of 99 square feet. The volume of the shed is advertised as 627 cubic feet. How tall is the shed?

- a. 6' 3" b. 6' 4" c. 16" d. 528' e. NG

34. If $a = 4.9$ and $b = 1\frac{5}{9}$, determine the value of the reciprocal of b/a . Express your answer as a common fraction

- a. $\frac{9}{14}$ b. $\frac{10}{49}$ c. $\frac{63}{20}$ d. $\frac{19}{18}$ e. NG

35. In 24 minutes, how many degrees will the hour hand have traveled?

- a. 24° b. 60° c. 96° d. 144° e. NG