

**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. What is the median of the savings in the bank accounts of these relatives:

\$28,000  
 \$11,000  
 \$12,000  
 \$49,000  
 \$15,000

- a. \$15,000    b. \$12,000    c. \$23,000    d. \$38,000    e. NG

2. Pascal's triangle

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      1
     1 1
    1 2 1
   1 3 3 1
  1 ? ? ? 1
 1 5 10 10 5 1
1 6 15 20 15 6 1
    
```

? + ? + ? = what sum

- a. 10    b. 12    c. 14    d. 16    e. NG

3. The mean of 46 numbers is 16.5, the median is 14 and the mode is 12. Find the sum of these 46 numbers.

- a. 11,550      b. 564      c. 598      d. 759      e. NG

4. What is the value of the expression  $|x| \cdot |-3|$  if  $x = 6$ ?

- a. 9      b. -9      c. 18      d. -18      e. NG

5. The following are equations of two lines. At what point do the lines intersect?

$$\begin{aligned}y &= 2x + 1 \\x &= y - 3\end{aligned}$$

- a. (-1, 2)      b. (0, 3)      c. (1, 4)      d. (2, 5)      e. NG

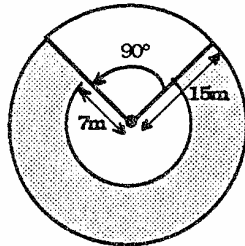
6. Simplify:  $3x - 4y + 6(2x - y) + (-5y)$

- a.  $-9x - 8y$       b.  $15x + 10y$       c.  $-9x - 10y$       d.  $15x - 8y$       e. NG

7. Which expression equals 5 if  $x = 1$ ,  $y = -2$  and  $z = 10$ ?

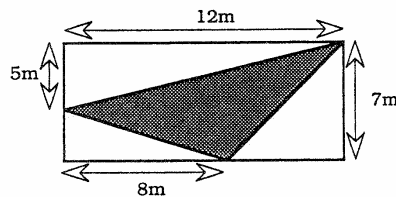
- a.  $\frac{z-2x}{y^2}$     b.  $x^2(y+x)$     c.  $\frac{xz}{y} - \frac{yz}{z}$     d.  $2(x-y) - x$     e. NG

8. Find the area of the shaded part of this figure: (Use  $\pi = 3.14$ )



- a.  $706.5 \text{ m}^2$     b.  $150.72 \text{ m}^2$     c.  $414.48 \text{ m}^2$     d.  $200.96 \text{ m}^2$     e. NG

9. Find the area of the shaded triangle in the diagram below.

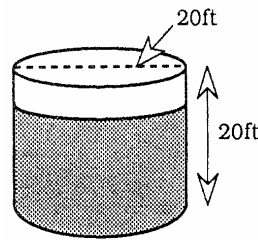


- a.  $32 \text{ m}^2$     b.  $28\frac{1}{2} \text{ m}^2$     c.  $42 \text{ m}^2$     d.  $30 \text{ m}^2$     e. NG

10. Let A = the greatest common factor of 12, 18, and 42.  
Let B = the least common multiple of 4, 6, and 9.  
Let C = the number of prime number factors of 100.  
Let D = the smallest composite number.

Find:  $A + B + C + D$

- a. 46            b. 48            c. 49            d. 228            e. NG
11. A cylindrical tank 20 feet in height and with a diameter of 20 feet is filled to 75% of its capacity. What is the volume of the unfilled portion of the tank? (Use  $\pi = 3.14$ )



- a. 314            b. 4710            c. 1570            d. 6280            e. NG  
cubic feet      cubic feet      cubic feet      cubic feet
12. Find the sum of 2 consecutive odd numbers whose product is 1023.
- a. 64            b. 58            c. 69            d. 74            e. NG

13. Solve the inequality:  $-4x \geq 7$

- a.  $x \geq 1\frac{3}{4}$     b.  $x \leq \frac{4}{7}$     c.  $x \leq 1\frac{3}{4}$     d.  $x \geq -\frac{4}{7}$     e. NG

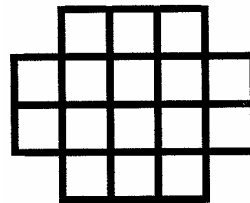
14. Find the distance between the points  $(0, 0)$  and  $(-5, 12)$  on the coordinate plane.

- a. 7    b. 17    c. 8.5    d. 13    e. NG

15. A principle balance of \$800.00 earned \$51.00 in interest in 9 months. What was annual simple interest rate?

- a.  $6\frac{3}{8}\%$     b. 7%    c. 8%    d.  $8\frac{1}{2}\%$     e. NG

16. How many squares can be found in the figure shown? The figure is constructed from 16 small squares each having lengths of 1.



- a. 20    b. 24    c. 25    d. 26    e. 27

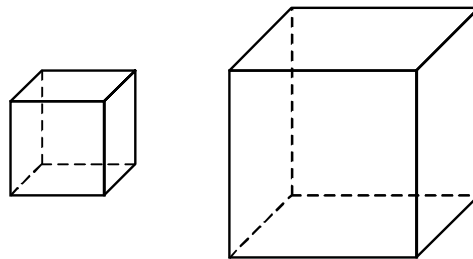
17. Find the product of the smallest positive prime and the smallest positive 2-digit prime?
- a. 22      b. 13      c. 12      d. 11      e. NG
18. A car travels 200 miles from point A to point B at 25 mph but returns the same distance at 40 mph. The average speed in mph for the round trip is closest to:
- a. 31 mph    b. 32 mph    c. 33 mph    d. 34 mph    e. 35 mph
19. Solve for  $x$ :  $\frac{2x}{3} - 1 = 7$
- a. 5      b. 6      c. 9      d. 12      e. NG
20.  $(100\%)^{200}$
- a. 0      b. 1      c. 300      d. 20,000      e. NG

21.  $|3x - 2| < 14$

If  $x$  is an integer, how many solutions does this inequality have?

- a. 5      b. 7      c. 9      d. 11      e. NG

22. If a larger cube's side is twice as long as a small cube's, how many times larger is its volume?



- a. 2      b. 4      c. 6      d. 8      e. NG

23. Solve for  $x$ :  $15 - 3(x + 9) = 15$

- a.  $-9$       b. 9      c. 3      d.  $\frac{-57}{12}$       e. NG

24. In a magic square, the three numbers in each row, in each column, and in each diagonal add up to the same number. When the magic square shown here is completed, which of the following numbers is not used?

<b>13</b>		
	<b>10</b>	
<b>9</b>		<b>7</b>

- a. 6            b. 8            c. 12            d. 14            e. 15
25.  $2^0 - 0^6$
- a. 2            b. 1            c. 0            d. -4            e. NG
26.  $\frac{22}{1 + \frac{1}{1 + \frac{1}{5}}}$
- a. 22            b. 21            c. 12            d.  $\frac{1}{3}$             e. NG

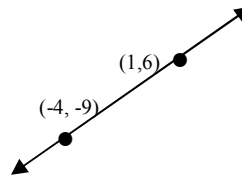
27. Which number is not irrational?

- a.  $\pi$       b.  $\sqrt{100}$       c.  $\sqrt{18}$       d.  $\sqrt{2}$       e.  $\sqrt{7}$

28. If  $x$  and  $y$  are natural numbers, then how many solutions does  $x + y = 12$  have?

- a. 1      b. 6      c. 11      d. 12      e. NG

29. Find the slope of a line parallel to the above line.



- a.  $\frac{1}{3}$       b.  $\frac{3}{5}$       c. 1      d. 3      e. NG

30. 86 is what percent of 50?

- a. 58%      b. 43%      c. 172%      d. 168%      e. NG

**31.** If the sides of a square are decreased by 3 meters, the area is decreased by 45 square meters. Find the length of the original square.

- a.** 9 m      **b.** 6 m      **c.** 5 m      **d.** 15 m      **e.** NG

**32.**  $4y - 3x - 48 = 0$

What is the  $y$ -intercept for this line?

- a.** 4      **b.** -3      **c.** 12      **d.** -48      **e.** NG

**33.** For a certain three digit positive number the ones digit is 3 times the hundreds digit. The tens digit is 1 less than the ones digit. The ones digit is 15 less than the product of the hundreds and tens digit. What digit is the ones digit?

- a.** 3      **b.** 6      **c.** 9      **d.** 1      **e.** NG

**34.** Three years ago Tim was 1 year less than 3 times his brother Ian's age. Now Tim is 3 years older than twice Ian's age. How old is Tim?

- a.** 9 years old      **b.** 10 years old      **c.** 20 years old      **d.** 23 years old      **e.** NG

**35.** A wheel revolves  $30^\circ$  per second. How many revolutions will the wheel make in 1 minute?

- a.** 2      **b.** 5      **c.** 6      **d.** 12      **e.** NG

