

Select the most correct answer for each

Note that N.O.T. means "none of these"

1. Solve for x : $4x - 2y = 8$

- (A) $x = 2y + 2$ (B) $x = \frac{1}{2}y + 8$ (C) $x = \frac{1}{2}y + 2$ (D) $x = -2y + 8$ (E) N.O.T.

2. Which of the following represents the number of days in x days and y hours?

- (A) $24x + y$ (B) $x + 24y$ (C) $x + \frac{y}{24}$ (D) $\frac{x}{24} + y$ (E) N.O.T.

3. Consider a rectangle with length l and width w . If the original length is cut in half and the original width is doubled, then the ratio of the new area to the original area is:

- (A) 1:1 (B) 2:1 (C) 1:2 (D) 3:2 (E) N.O.T.

4. What is the sum of the first 20 positive **odd** integers?

- (A) 400 (B) 420 (C) 440 (D) 210 (E) N.O.T.

5. The slope of a line perpendicular to $2x + 5y = 12$ must be:

- (A) $\frac{5}{2}$ (B) $-\frac{5}{2}$ (C) $\frac{2}{5}$ (D) $-\frac{2}{5}$ (E) N.O.T.

6. The sum of the prime factors of 399 is:

- (A) 21 (B) 3 (C) 29 (D) 84 (E) N.O.T.

7. The ratio of an angle to its complement is 1:4. What is the measure of the original angle?

- (A) 20° (B) 18° (C) 35° (D) 15° (E) N.O.T.

8. Which measurement most nearly approximates the height of a typical center in the NBA?

- (A) 6.11 m (B) 3 m (C) 220 cm (D) 175 cm (E) 1800 mm

9. In a school with 100 children, half the boys and two-thirds of the girls can swim. Forty-three children cannot swim. How many boys are in the school?

- (A) 42 (B) 44 (C) 36 (D) 58 (E) N.O.T.

is the value of m ?


) 41  (80

(A) 9120

(B) 9.9×10^3

(C) $2!$

(D) 6 

(E) N.O.T. 

12. A **googol** is 1 followed by 100 zeros. How many zeros are in the square root of a googol?

(A) 10

(B) 25

(C) 50

(D) 20


(E) N.O.T.

13. National Hockey League teams play eighty-four game schedules, earning two points per win, one point per tie, and no points per loss. If a team earns 75 points in a season, what is the largest number of losses possible?

(A) 46

(B) 37

(C) 38

(D) 23 

(E) N.O.T.

14. If a faucet drips at the rate of a drop every 2 seconds, and it takes 575 drops to fill a 100 ml bottle, how many liters of water (**to the nearest hundredth of a liter**) are wasted in a week?

(A) 31.42

(B) 52.59

(C) 78.54

(D) 14.16

(E) N.O.T.

15. In a regular polygon, all sides are the same length. If a regular octagon (8 sides) and a regular hexagon (6 sides) have the same perimeter, what is the ratio of the length of a side of the hexagon to the length of a side of the octagon?

(A) 3 to 4

(B) 4 to 3

(C) 6 to 10

(D) .75 to 1

(E) N.O.T.

16. $(x + y)^2 = (x - y)^2 + \underline{\hspace{2cm}}?$

(A) y^2

(B) $2xy$


(C) x^2


(D) $4xy$

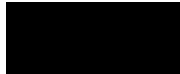
(E) N.O.T.


17. Two mathematics classes took the same test. The mean of the first class of 25 students was 81%. The second class had 20 students. If the combined mean for the two classes was 85%, what was the mean score for the second class?

(A) 89%

(B) 87.5% 

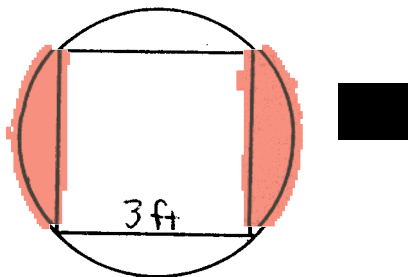
(C) 92.5% 

(D) 90% 

(E) N.O.T. 

19. $\left[3^{-1+(3^{-1})^{-1}} \right]$
- (A) $\frac{1}{9}$ (B) $\frac{1}{3}$ (C) .3 (D) $\frac{2}{3}$ (E) N.O.T
20. A mother is 4 times as old as her son is now. In twenty years she will be only twice as old as her son. How old is the mother now?
- (A) 20 (B) 24 (C) 32 (D) 36 (E) N.O.T
21. There are three consecutive integers. The product of the smaller two is 8 more than 7 times the largest. Which equation below describes this relationship?
- (A) $n(n+1) = 7(n+2) - 8$ (B) $n(n+1) = 7(n+2) + 8$
(C) $n(n+2) = 7(n+4) - 8$ (D) $n(n+2) = 7(n+4) + 8$ (E) N.O.T
22. A counting number is said to be **decreasing** if each digit of the number is less than the integer on its left. How many counting numbers between 10 and 100 are decreasing?
- (A) 45 (B) 18 (C) 36 (D) 54 (E) N.O.T
23. Suppose a cube has a surface area of 15 square inches. If we double the side length, what is the new surface area?
- (A) 30 sq. in. (B) 45 sq. in. (C) 60 sq. in. (D) 90 sq. in. (E) N.O.T
24. The sum of $3x^3 - 4x - 5$ and $2x^2 + 3x - 7$ is
- (A) $3x^3 + 2x^2 - x - 12$ (B) $5x^5 - x^2 - 12$ (C) $3x^3 + x^2 - 12$
(D) $5x^5 - x - 12$ (E) N.O.T
25. If there are 5,280 feet in a mile, and 640 acres in a square mile, how many square feet are there in an acre?
- (A) 8.25 (B) 43,560 (C) 77.58 (D) 25,260 (E) N.O.T

27. Suppose a photo is reduced $33\frac{1}{3}\%$, and the result is reduced again by the same percentage. To get it back to the original size, by what percent must it be enlarged?
- (A) $133\frac{1}{3}\%$ (B) 900% (C) 225% (D) 300% (E) N.O.T.
28. A point is chosen at random from within a circular region. What is the probability that the point is closer to the center of the region than it is to the boundary of the region?
- (A) $\frac{1}{4}$ (B) $\frac{1}{3}$ (C) $\frac{1}{2}$ (D) $\frac{2}{3}$ (E) $\frac{3}{4}$
29. A table is in the form of a square, 3 feet on each side. Each side has a drop leaf, and when the leaves are raised, the table becomes a circle, as shown in the figure below. **To the nearest tenth of a square foot**, by how much does the area of the circular table exceed the area of the square table?



- (A) 1.3 ft^2 (B) 5.1 ft^2 (C) 3.7 ft^2 (D) 2.4 ft^2 (E) N.O.T.
30. A rubber ball rebounds to half the height it drops. If the ball is dropped from a rooftop 18 m above the ground, what is the total distance traveled by the time it hits the ground the third time?
- (A) 31.5 m (B) 40.5 m (C) 45 m (D) 63 m (E) N.O.T.