

Choose the letter of the correct answer. If the correct answer is not present, choose E. NOTA

NO CALCULATORS ALLOWED

1) Mount Everest is the tallest mountain in the world, rising about 29,000 feet above sea level.

Write 29,000 in Scientific Notation.

- A) 29×10^3 B) 29×10^{-3} C) 2.9×10^4 D) 2.9×10^{-4} E) NOTA

2) "If a and b are both Real numbers, then ab is also a Real number" is an example of which property?

- A) Associative Property of Multiplication B) Closure Property
C) Distributive Property D) Multiplicative Inverse E) NOTA

3) According to set theory, if $A \subset B$ and $B \subset A$, then $A = B$.

- A) Always B) Sometimes C) Never D) Not enough information E)NOTA

4) If $\frac{r}{2} = 12$, evaluate $5r$.

- A) $\frac{5}{6}$ B) 24 C) 30 D) 120 E) NOTA

5) Seven less than five times a number is the same as the product of three and the sum of twice the number and five. Find the number.

- A) 2 B) $-\frac{8}{11}$ C) -12 D) -22 E) NOTA

6) Emily's mother is currently four years more than three times Emily's age. In 18 years, the sum of their ages will be 96. If s = Emily's current age and m = the mother's current age, find $s + m$.

- A) 132 B) 60 C) 46 D) 17 E) NOTA

7) Tyanne drove 275 miles in 8 hours. Before noon he averaged 40 miles per hour and after noon he averaged 25 miles per hour. At what time did he begin his trip?

- A) 5:00 a.m. B) 7:00 a.m. C) 9:00 a.m. D) 3:00 p.m. E) NOTA

8) Solve. $-5 > 2 - |3 - 2h|$

- A) $h < -2 \cap h > 5$ B) $h < 2 \cap h > -5$ C) $h < -2 \cup h > 5$
D) $h < 2 \cup h > -5$ E) NOTA

9) Find the degree of the polynomial. $4x^2y^3 + 5xy^5 - 2x^3y^4 + 7^3x^5y$

- A) 5 B) 6 C) 7 D) 9 E) NOTA

- 10) Minty has the following five books in her locker : Math, History, Latin, Science, and English. Without looking at the books, she pulls out one book and then, without replacing the first book, pulls out a second book. What is the probability that she first pulls out the Math book and then the English book?
- A) $\frac{9}{20}$ B) $\frac{2}{5}$ C) $\frac{1}{20}$ D) $\frac{1}{25}$ E) NOTA
- 11) Write an equation in Slope-Intercept Form of the line that passes through the points (30, 500) and (90, 600).
- A) $y = \frac{5}{3}x + 450$ B) $y = \frac{5}{3}x - \frac{2410}{3}$ C) $y = \frac{3}{5}x + 482$ D) $y = \frac{3}{5}x - 270$ E) NOTA
- 12) Write an equation in Standard Form of the line that is perpendicular to $2x + 3y = 8$ and has the same x-intercept as $4x - 5y = -12$.
- A) $3x + 2y = -6$ B) $3x + 2y = -9$ C) $3x - 2y = -6$ D) $3x - 2y = -9$ E) NOTA
- 13) Simplify. Leave only positive exponents in your answer. $\frac{(3x^2y^{-3})^{-2}}{(x^{-2})(6x^{-3}y^{-2})^{-2}}$
- A) $\frac{4y^2}{x^8}$ B) $\frac{y^2}{4x^8}$ C) $\frac{x^8y^2}{4}$ D) $4x^8y^2$ E) NOTA
- 14) Which choice best represents the way to solve the following problem? Publix Super Market has $(x + y)^m$ shelves filled with cereal boxes. If there are $(x + y)^n$ boxes on each shelf, how many boxes of cereal are there?
- A) $(x + y)^{mn}$ B) $(x + y)^{m+n}$ C) $(x + y)^{m-n}$ D) $(x + y)^{n-m}$ E)NOTA
- 15) Mr. Lawyer paved his patio with 50 slate squares. His neighbor, Ms. Campbell, using slate squares 3 feet longer on a side, needed 8 slate squares to pave an equal area. What were the dimensions of Mr. Lawyer's slate squares?
- A) 2 sq feet B) $2\frac{1}{12}$ sq feet C) 8 sq feet D) $104\frac{1}{6}$ sq feet E) NOTA
- 16) How much pure acid must be added to 15 grams of an acid solution that is 40% acid in order to produce a solution that is 50% acid?
- A) 4 grams B) 3 grams C) 2 grams D) 1 gram E) NOTA

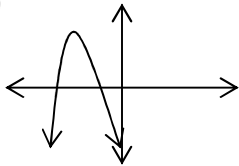
17) A dogsled racer in Alaska stopped while crossing some difficult terrain to tend to one of her dogs. She had traveled 32 kilometers before stopping, and then traveled 96 kilometers afterward, at twice the earlier rate. If the actual running time was 5 hours, find her average rate after stopping.

- A) 16 B) 22.4 C) 32 D) 44.8 E) NOTA

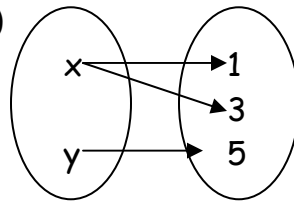
18) Which of the following relations is/are also function(s)?

I) (2, 5), (3, 5), (4, 8)

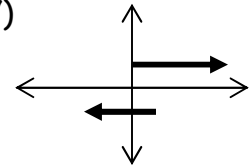
II)



III)



IV)



A) I, II, III, and IV

B) III and IV only

C) I and II only

D) none are functions

E) NOTA

19) Salim the Answer Expert gives wild guesses for \$2 and guaranteed answers for \$3.

If Salim collected \$239 from 92 paying customers, how many wild guesses did he give?

- A) 18 B) 37 C) 55 D) 74 E) NOTA

20) Given $\begin{bmatrix} -4 & 7 \\ 6 & -3 \end{bmatrix} + \begin{bmatrix} a & b \\ c & d \end{bmatrix} = \begin{bmatrix} 10 & 17 \\ 11 & -5 \end{bmatrix}$. Find $a + b + c + d$

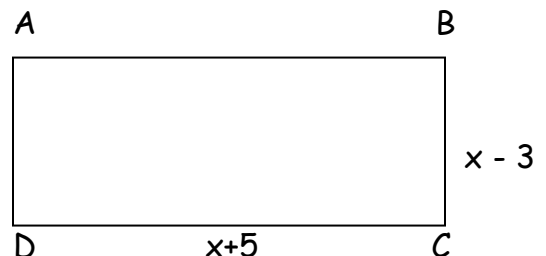
- A) $\frac{24}{7}$ B) 27 C) 31 D) 39 E) NOTA

21) Simplify. Express the result in lowest terms. $\frac{x^3 - x}{x^2 - x - 2} \div \frac{x^2 - x}{x^2 + x} \cdot \frac{2x - 4}{2x + 2}$

- A) $\frac{(x - 1)^2}{x(x + 1)^2}$ B) $\frac{x(x - 1)^2}{(x + 1)^2}$ C) $\frac{1}{x}$ D) x E) NOTA

22) The area of rectangle ABCD is 48 square inches. Find the dimensions of the rectangle.

- A) 2" X 24" B) 3" X 16"
 C) 4" X 12" D) 6" X 8"
 E) NOTA



23) Given the system of equations : $4x + 3y = -3$
 $\underline{2x + ay = 31}$ Find a if you know $x = 3$.

- A) $\frac{37}{3}$ B) 5 C) -5 D) $\frac{-25}{3}$ E) NOTA

24) Find the length of the line segment whose endpoints are $(-5, 1)$ and $(7, 6)$.

- A) 13 B) $\sqrt{119}$ C) $\sqrt{53}$ D) $\sqrt{29}$ E) NOTA

25) Multiply and simplify. $7\sqrt{56} \cdot 3\sqrt{\frac{1}{2}}$

- A) 588 B) 294 C) $84\sqrt{7}$ D) $42\sqrt{7}$ E) NOTA

26) Simplify. $\frac{\sqrt{24} - \sqrt{6}}{\sqrt{2}}$

- A) $2\sqrt{3} - 3$ B) $\sqrt{3}$ C) 3 D) 9 E) NOTA

27) Solve. $\sqrt{x} + 6 = x$

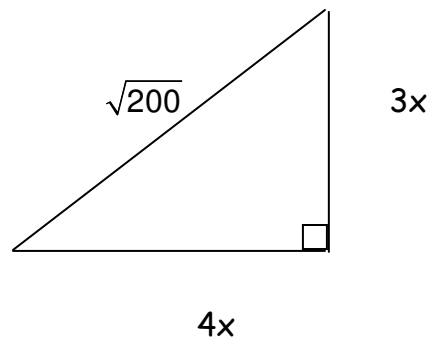
- A) $\{4, 9\}$ B) $\{9\}$ C) $\{4\}$ D) \emptyset E) NOTA

28) Solve. $\frac{x-2}{2} = \frac{9}{x-2}$

- A) $-2 \pm 2\sqrt{3}$ B) $2 \pm 2\sqrt{3}$ C) $-2 \pm 3\sqrt{2}$ D) $2 \pm 3\sqrt{2}$ E) NOTA

29) Find the value of x if the following triangle is a right triangle.

- A) 8 B) ± 8 C) $2\sqrt{2}$
 D) $\pm 2\sqrt{2}$ E) NOTA



30) If $f(x) = -2x^2 + 6$, find $f(3)$.

- A) 42 B) 24 C) -12 D) -24 E) NOTA