

Quantitative Reasoning

Directions: Shade the oval that corresponds to the best answer.

1. Find the value of N if

(a) (b) (c) (d)

$$N = 18 - 15 \div (8 - 5) \times 3 + 7$$

a. 0 b. 6 c. 10 d. 15

2. Given $30^2 - ? + 15^2 = 1222$, what value should be substituted to “?” to make the equation *true*?

(a) (b) (c) (d)

a. 73 b. 81 c. -89 d. -97

3. What number should replace x to make the equation

(a) (b) (c) (d)

$$\frac{x}{112} = \frac{7}{x} \text{ true?}$$

a. 3 b. 14 c. 20 d. 28

4. A five-digit number is to be formed using the numerals 0, 1, 2, 3, 4 and 5, without repetition. The total number of ways in which this can be done is ____.

(a) (b) (c) (d)

a. 12 b. 240 c. 600 d. 720



5. $37\frac{1}{2}\%$ of 192 + $33\frac{1}{3}\%$ of 306 = ? (a) (b) (c) (d)

- a. 174 c. 274
b. 198 d. 498

6. Simplify the rational expression $\frac{ab+3a-b^2-3b}{a^2-b^2}$. (a) (b) (c) (d)

- a. 1 c. $\frac{a+b}{a-b}$
b. 3 d. $\frac{b+3}{a+b}$

7. Determine the domain of the function $y = \frac{x}{2x-7}$. (a) (b) (c) (d)

- a. $\{x|x=y\}$ c. $\left\{x \mid x \neq \frac{7}{2}\right\}$
b. $\{x|x=2\}$ d. $\{x|x \neq 7\}$

8. A sum of money is divided among Jeriza, Guye, Maan and Marlon in the ratio 3 : 7 : 11 : 15 respectively. If the share of Marlon is Php 300 more than the share of Jeriza, then what is the total amount of money of Guye and Maan together? (a) (b) (c) (d)

- a. Php 360 c. Php 1500
b. Php 450 d. Php 1800

9. Which among the following is a solution of the inequality $5y + 6(y - 1) \leq 3y - 1$? (a) (b) (c) (d)

- a. 1 b. $\frac{5}{7}$ c. $\frac{5}{9}$ d. $\frac{7}{8}$

10. Simplifying the complex fraction $\frac{\frac{a+b}{a-b} - 1}{\frac{3}{a-b}}$ will give (a) (b) (c) (d)

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



11. $(9\sqrt{x} + 2)(5\sqrt{x} - 3) =$ _____ (a) (b) (c) (d)

- a. $18x - 10\sqrt{x} - 15$ c. $5x - 17\sqrt{x} - 6$
 b. $45x - 17\sqrt{x} - 6$ d. $45x - 10\sqrt{x} - 6$

12. $(5^{x+5} + 5^{x+2}) \div (5^{x+4} - 5^{x+1}) =$ (a) (b) (c) (d)

- a. 5 c. $\frac{5^{2x+7}}{5^{2x+5}}$
 b. 25 d. $\frac{315}{62}$

13. What is the product of (a) (b) (c) (d)

$$\frac{x^2 + 10x + 25}{3x^2 + 8x - 35} \cdot \frac{9x^2 - 42x + 49}{2x^2 + 9x - 5} ?$$

a. $\frac{7x-3}{x-2}$

c. $\frac{3x-7}{2x-1}$

b. $\frac{x-7}{x-1}$

d. $\frac{3x-1}{2x-7}$

14. The sum of $\frac{3r+2}{2r^2+5r+2}$ and $\frac{2r-5}{r^2-3r-10}$ is _____. (a) (b) (c) (d)

a. $\frac{5r-3}{3r^2+2r-8}$

c. $\frac{6r^2-11r-10}{(2r+1)(r+2)(r-5)}$

b. $\frac{7r^2-21r-15}{(2r+1)(r+2)(r-5)}$

d. $\frac{3r+2}{r^2-3r-10}$

15. The weight of a container is 25% of the weight of the container when filled with water. After filling up the container, some of the water got spilled during transportation. Now, the container, along with the remaining water, weighs only seven-tenths of the original weight. What fractional part of the water has been spilled? (a) (b) (c) (d)

a. $\frac{1}{4}$

b. $\frac{2}{5}$

c. $\frac{3}{4}$

d. $\frac{4}{5}$

16. What is the quotient when $\frac{m^3 - n^3}{m^3 + n^3}$ is divided by (a) (b) (c) (d)

$$\frac{m^2 + mn + n^2}{m^2 - mn + n^2} ?$$

a. $\frac{m-n}{m+n}$

c. $\frac{m^2 - n^2}{m^2 + n^2}$

b. -1

d. $\frac{m^2 + mn - n^2}{m^2 - mn + n^2}$



17. The scores of 8 students were 75, 79, 73, 83, 87, 90, 93, 96. What was the average score of the students? (a) (b) (c) (d)

a. 83.7

c. 88

b. 84.5

d. 90.2

18. Amadeo can do a job in 4 hours that Gary can do in 3 hours and Rembrant can do in 6 hours. If the three work together, how many hours will they finish the job? (a) (b) (c) (d)

a. $\frac{1}{12}$ hour

c. $1\frac{2}{3}$ hours

b. $1\frac{1}{3}$ hours

d. $1\frac{3}{4}$ hours

19. Averaging a speed of 50 km/hr, a train can reach its destination on time. If it goes with an average speed of 40 km/hr, it will be late by 36 minutes. How long is the normal travel time? (a) (b) (c) (d)

a. $\frac{3}{5}$ hour c. $1\frac{2}{3}$ hours

b. $1\frac{3}{5}$ hours d. $2\frac{2}{5}$ hours

20. What is the area of a 30° - 60° - 90° triangle if its hypotenuse is 84 cm? (a) (b) (c) (d)

a. $882\sqrt{3} \text{ cm}^2$ c. $3528\sqrt{3} \text{ cm}^2$

b. $963\sqrt{3} \text{ cm}^2$ d. $7056\sqrt{3} \text{ cm}^2$

21. A chemist has 30 ml of a 19% alcohol solution. How many ml of a 13% alcohol solution does he need to make a 16% alcohol solution? (a) (b) (c) (d)

a. 30 ml c. 48 ml

b. 35 ml d. 60 ml

22. Given a right triangle with $\tan \theta = \frac{8}{15}$, what is $\csc \theta \sec \theta$? (a) (b) (c) (d)

a. $\frac{8}{17}$ b. $\frac{289}{150}$ c. $\frac{120}{289}$ d. $\frac{289}{120}$

23. The average age of a husband and wife and their pet dog is 21 years. If the average age of the husband and wife is 26 years, how old is the dog? (a) (b) (c) (d)

- a. 11 b. 15 c. 21 d. 26

24. Marlon mixed coffee A that is worth Php 150 per kilo with coffee B that is worth Php 100 per kilo. How many kilograms of coffee A must be used if he wants to produce a 90-kilogram mixture that is worth Php 115 per kilo? (a) (b) (c) (d)

- a. 27 kg b. 35 kg c. 90 kg d. 100 kg

25. The simplest form of $\frac{4x^2 + 20x + 25}{6x^2 + x - 35}$ is _____ (a) (b) (c) (d)

- a. $\frac{x+5}{x-7}$ c. $\frac{x+5}{x+7}$
 b. $\frac{2x-5}{3x+7}$ d. $\frac{2x+5}{3x-7}$



26. What is the value of y for the equation (a) (b) (c) (d)

$$\frac{5y+3}{4} + \frac{25}{12} = \frac{5+2y}{3} ?$$

- a. -3 b. -2 c. 12 d. 25

27. Which radical expression is in simplest form? (a) (b) (c) (d)

a. $\sqrt[5]{9x^3y^7}$

c. $\sqrt[12]{y^6}$

b. $\sqrt[12]{32x^7y^5}$

d. $\sqrt[8]{1024x^{11}y^6}$

28. The bus fare for the first 4 kilometers of a trip is Php 10 and an additional Php1.50 for every succeeding kilometer. How much will one pay for a distance of 19 kilometers? (a) (b) (c) (d)

a. Php 32.50

c. Php 37.00

b. Php 35.50

d. Php 38.50

29. If the probability that an event will occur is $\frac{2}{5}$, (a) (b) (c) (d)
what is the probability that it will *not* occur?

a. $\frac{3}{5}$

b. $\frac{6}{25}$

c. $\frac{4}{5}$

d. 1

30. Find the probability of drawing 4 Queens and a King from a standard deck of cards. (a) (b) (c) (d)

a. $\frac{{}_{52}C_4 \cdot {}_{52}C_1}{{}_{52}C_5}$

c. $\frac{{}_{52}C_5}{{}_{52}C_4 \cdot {}_{48}C_1}$

b. $\frac{1}{{}_{52}C_5}$

d. $\frac{4}{{}_{52}C_5}$

31. Find the 7th term of an arithmetic progression if the 10th term is 32, and the 15th term is 47. (a) (b) (c) (d)
- a. 23 b. 25 c. 27 d. 29
32. Preparing for a marathon run, Guye slowly trains by following a daily jogging program. During the first day, he jogs around for 20 minutes then adds another three minutes on each succeeding day. How many days will it be before he is up to jogging more than 110 minutes per day? (a) (b) (c) (d)
- a. 31 b. 32 c. 33 d. 34
33. The ages of Allen and Jasper are in the ratio of 3 : 2 respectively. After 8 years, the ratio of their ages will be 4 : 3. What is the age of Jasper now? (a) (b) (c) (d)
- a. 16 b. 19 c. 21 d. 24
34. What are the possible values of x in the equation $x^2 - 4x = 45$? (a) (b) (c) (d)
- a. {4, 45} c. {-9, 5}
b. {3, 15} d. {9, -5}
35. The distance between the points $(-9, 4)$ and $(7, -2)$ is _____ units. (a) (b) (c) (d)
- a. 17 c. $2\sqrt{77}$
b. $2\sqrt{73}$ d. 22



36. Mr. Velasco bought a shirt with a 14% discount. (a) (b) (c) (d)
If he only paid Php 537.50, what was the original price of the shirt?

- a. Php 500 c. Php 625
b. Php 575 d. Php 750

37. If the numerator of a fraction is increased by 250% (a) (b) (c) (d)
and the denominator is decreased by 7,
the resultant fraction is $\frac{7}{9}$. What is the original
fraction if the denominator is 625% of the
numerator?

- a. $\frac{1}{10}$ b. $\frac{4}{25}$ c. $\frac{4}{9}$ d. $\frac{7}{9}$

38. A conference hall can accommodate 975 persons. (a) (b) (c) (d)
About 72% of the available seminar tickets were
sold. How many tickets are left unsold for the
seminar?

- a. 273 c. 702
b. 573 d. 975

39. In a race, the first runner up receives $\frac{3}{4}$ of the (a) (b) (c) (d) champion's prize money while the second receives $\frac{2}{5}$ of what the champion received. What is the difference between the prize of the first runner-up and the second runner-up given that the champion's prize money is P20 000?

- a. 4 000 c. 6 000
b. 5 000 d. 7 000

40. A wheel makes 1 000 revolutions in covering a (a) (b) (c) (d) distance of 88 km. The diameter of the wheel is

- a. $\frac{11}{125}$ km c. $\frac{11}{125\pi}$ km
b. $\frac{11\pi}{125}$ km d. $\frac{11}{250\pi}$ km

