

PCAT-SECTION3^{Q&As}

Pharmacy College Admission Test - Quantitative





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QUESTION 1

What is the probability of selecting a face card of a spade suit from two standard decks of cards?

- A. 3/52
- B. 6/52
- C. 6/104
- D. 46/104

Correct Answer: C

You are asked to determine the probability of randomly selecting one face card (king, queen, or jack) of a spade suit from two standard decks of cards. Because there are two decks of cards, a single card can be selected from two decks in $n = 104$ different ways. Since there are 3 face cards of a spade suit in one deck of cards, such a card can be drawn from the two decks in $s = 6$ different ways. Thus, the probability that the selected card is a face card of a spade suit is: $p = s/n = 6/104$

QUESTION 2

A student obtained an average of 86 for a series of seven assignments. Six of the grades were 85, 78, 83, 91, 89, and 86. The grade of the seventh assignment is:

- A. 74
- B. 86
- C. 90
- D. 98

Correct Answer: C

From the information in the problem,

$$\text{Average} = \frac{\text{Sum of Terms}}{\text{Number of Terms}}$$

$$86 = \frac{85 + 78 + 83 + 91 + 89 + 86 + x}{7} = \frac{512 + x}{7}$$

$$x = 86 \times 7 - 512 = 602 - 512 = 90.$$

QUESTION 3

The three most commonly used temperature scales are Fahrenheit (°F), Celsius (°C), and Kelvin (K). They are based on the freezing point and boiling point of water as shown below.

Temperature Scale	Freezing Point of Water	Boiling Point of Water
Fahrenheit (°F)	32	212
Celsius (°C)	0	100
Kelvin (K)	273	373

The formula for temperature conversion between the Fahrenheit and Celsius scales is

$$T_F = \frac{9}{5}T_C + 32$$

What is the linear equation relating temperature in Fahrenheit to temperature in Kelvin?

A. $T_F = -\frac{9}{5}T_K + 459.4$

C. $T_F = \frac{9}{5}T_K + 459.4$

B. $T_F = \frac{9}{5}T_K + 459.4$

D. $T_F = \frac{9}{5}T_K - 459.4$

A. Option A

B. Option B

C. Option C

D. Option D

Correct Answer: D

QUESTION 4

What is the probability of randomly selecting a ten card from a standard deck of cards?

A. 1/52

B. 1/13

C. 12/13

D. 51/12

Correct Answer: B

To determine the probability that a selected card is a ten, you should first note that a card can be selected from a deck in 52 different ways. Since there are four ten cards, one ten for each of the four suits, a ten can be drawn from the deck in 4 different ways. Thus, the probability that the selected card is a ten is:

$$p = \frac{s}{n} = \frac{4}{52} = \frac{1}{13}.$$

QUESTION 5

If $x/y = 8$ and $x=64$, then what is the sum $x + y$?

- A. 56
- B. 64
- C. 72
- D. 81

Correct Answer: C

From the first equation, multiply both sides by y resulting in $x = 8y$.

Because $x = 64$, you can write

$$64 = 8y$$

$$y = 8$$

Substituting the given information regarding x and y into its sum yields:

$$x + y = 64 + 8 = 72.$$

QUESTION 6

What is the sum of the following polynomials? $5x + 3xy + 6y^2$, $9xy + 7y^2 + 4x$ and $8y^2 + 7x + 12xy$

- A. $12x + 15xy + 14y^2$
- B. $x + 9xy + 6y^2$
- C. $8x + 24xy + 7y^2$
- D. $5x + 12xy + 7y^2$

Correct Answer: C

QUESTION 7

Solve for x: $10 + 5x^2 = 135$

- A. ± 2
- B. ± 5
- C. ± 10
- D. ± 25

Correct Answer: B

QUESTION 8

Chemistry students performed nine volume measurements of a solution during a lab and obtained the following results:

{2.4mL, 3.2mL, 3.7mL, 3.7mL, 4.5mL, 6.8mL, 7.3mL, 8.1mL, 12.2mL}

What is the median of the data set?

- A. 3.7mL
- B. 4.5mL
- C. 5.8mL
- D. 9.8mL

Correct Answer: B

The median is the middle or center value of the data set arranged in ascending numerical order, or 4.5mL.

QUESTION 9

What are the roots of the quadratic equation $3x^2 + 10 = 0$?

- A. $x = \sqrt{2}, -\frac{5}{3}$ B. $x = 2, -\sqrt{\frac{5}{3}}$ C. $x = -2, \sqrt{\frac{5}{3}}$ D. $x = 2, -\frac{5}{3}$

- A. Option A
- B. Option B

C. Option C

D. Option D

Correct Answer: D

QUESTION 10

Evaluate the following definite integral:

$$\int_1^9 3t^3 dt$$

A. 4920

B. 2560

C. 2179

D. 1659

Correct Answer: A

QUESTION 11

What is the probability that two cards drawn from a deck of cards are face cards (king, queen, or jack) of any suit if the first card drawn is replaced before the second card is drawn?

A. 9/169

B. 1/16

C. 3/13

D. 1/26

Correct Answer: A

QUESTION 12

Solve for x: $x^2 - 12x = 36$

- A. 2
- B. 3
- C. 4
- D. 6

Correct Answer: D

The first thing to do in solving the equation $x^2 - 12x + 36 = 0$ is to rewrite the equation by adding 36 to both sides and then to express the equation in terms of factors: $x^2 - 12x + 36 = 0 \Rightarrow (x - 6) \cdot (x - 6) = 0$. Solving the equation for x yields $x = 6$.

QUESTION 13

Evaluate the following indefinite integral:

$$\int 10t^4 dt$$

- A. $2t^5 + C$
- B. $10t^5 + C$
- C. $\frac{2}{5}t^5 + C$
- D. $\frac{10}{3}t^5 + C$

- A. Option A
- B. Option B
- C. Option C
- D. Option D

Correct Answer: A

Evaluating these integral yields:

$$\int 10t^4 dt = \frac{10}{5}t^5 = 2t^5 + C.$$

QUESTION 14

$\frac{1}{3} \div \frac{5}{9} =$

- A. $\frac{3}{5}$
- B. $\frac{5}{3}$
- C. $\frac{5}{9}$
- D. $\frac{1}{9}$

- A. Option A

B. Option B

C. Option C

D. Option D

Correct Answer: A

The quotient of the two fractions can be found by writing the fractions as:

$$\frac{1}{3} \div \frac{5}{9} = \frac{1}{3} \cdot \frac{9}{5} = \frac{3}{5}$$

QUESTION 15

What are the roots of the equation $x^2 - 7x + 18 = 0$?

A. 4.5, 1

B. 2, 4.5

C. 3.5, 8

D. 1, 4.5

Correct Answer: A

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