
**Vendor:**PCAT

**Exam Code:**PCAT-SECTION3

**Exam Name:**Pharmacy College Admission Test - Quantitative

**Version:**Demo

**QUESTION 1**

Evaluate the following definite integral:

$$\int_2^4 \left(x^5 - 6x^3 + 8x + 2\right) dx$$

A. 110

B. 364

C. 148

D. 250

Correct Answer: B

You begin by solving the integral and then evaluating the result between the limits of 2 and 4.

$$\int_2^4 \left(x^5 - 6x^3 + 8x + 2\right) dx = \left(\frac{x^6}{6} - \frac{6x^4}{4} + \frac{8x^2}{2} + 2x\right)_2^4$$

$$= \left(\frac{(4)^6}{6} - \frac{6(4)^4}{4} + \frac{8(4)^2}{2} + 2(4)\right) - \left(\frac{(2)^6}{6} - \frac{6(2)^4}{4} + \frac{8(2)^2}{2} + 2(2)\right)$$

$$= \left(\frac{4096}{6} - \frac{1536}{4} + \frac{128}{2} + 8\right) - \left(\frac{64}{6} - \frac{96}{4} + \frac{32}{2} + 4\right)$$

$$= \frac{4448}{12} - \frac{80}{12} = \frac{4368}{12} = 364.$$

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**QUESTION 2**

Evaluate the following derivative: d/dx(5a4)

A. 0

B. 5z4

C. 20a3

D. 5a3

Correct Answer: A

You begin by solving the integral and then evaluating the result between the limits of 2 and 4.

$$\frac{d}{dx}\left(x^n\right) = nx^{n-1}$$

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**QUESTION 3**

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 mean of the data set?

A. 3.7mL

B. 4.5mL

C. 5.8mL

D. 9.8mL

Correct Answer: C

The mean of a data set is the arithmetic average of the values of the data set or

$$\frac{2.4mL + 3.2mL + 3.7mL + 3.7mL + 4.5mL + 6.8mL + 7.3mL + 8.1mL + 12.2mL}{9}$$

$$= \frac{51.9mL}{9} = 5.8mL.$$

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**QUESTION 4**

What is the sum of the following polynomials? 5x + 3xy 6y2, 9xy + 7y2 4x and 8y2 + 7x + 12xy

A. 12x+ 15xy 14y2

B. x+ 9xy 6y2

C. 8x+ 24xy 7y2

D. 5x+ 12xy+ 7y2

Correct Answer: C

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**QUESTION 5**

Evaluate the following indefinite integral: A. Option A

$$\int t^2\left(\frac{5}{t}-\frac{t}{5}\right)dt$$

A. $\frac{5t^2}{2}+\frac{t^4}{20}+C$ B. $\frac{5t^2}{2}+\frac{t^4}{20}-C$ C. $-\frac{5t^2}{2}-\frac{t^4}{20}+C$ D. $-\frac{5t^2}{2}+\frac{t^4}{20}+C$

B. Option B

C. Option C

D. Option D

Correct Answer: B

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**QUESTION 6**

Express in scientific notation: 13.9

A. 1.39 × 101

B. 1.39 × 101

C. 13.9 × 101

D. 13.9 × 101

Correct Answer: B

In scientific notation, the number 13.9 is 1.39 × 101.

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**QUESTION 7**

What are the roots of the quadratic equation 3x2 x 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

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**QUESTION 8**

(

5.4 × 107) ÷ (2.7 × 103) =

A.

Option A

B.

Option B

C.

Option C

D.

Option D

A. $-1.5\times10^4$ B. $-2.0\times10^4$ C. $-3.5\times10^4$ D. $-5.0\times10^4$

Correct Answer: B

To divide the two numbers in scientific notation, you have:

$$-5.4\times10^7 \div 2.7\times10^3 = \frac{-5.4\times10^7}{2.7\times10^3} = -\frac{5.4}{2.7}\times\frac{10^7}{10^3} = -2.0\times10^4.$$

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**QUESTION 9**

What is the probability that two cards drawn from a deck of cards are of a black suit (e.g., either clubs or spades) if the first card drawn is replaced before the second card is drawn?

A. 1352/2704

B. 676/2704

C. 6/2704

D. 2/2704

Correct Answer: B

Because the two drawings are made from a complete deck of cards, the two events are independent of one another. You first need to determine the probability of drawing a card of twosuits from a deck of cards. Out of a total of 52 cards, there are 13 cards of any suit and 26 cards of a black suit. The probability of drawing a card of a black suit, P(A), is 26/52. Because the first card is replaced before the second drawing, the probability of drawing a card of the same suit, P(B), is also 26/52. Thus, the probability of drawing two cards of the same suit is

$$P(\text{A and B}) = P(\text{A}) \cdot P(\text{B}) = \frac{26}{52} \cdot \frac{26}{52} = \frac{676}{2704}.$$

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**QUESTION 10**

Solve for x: 10 + 5x2 = 135

A. ±2

B. ±5

C. ±10

D. ±25

Correct Answer: B

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**QUESTION 11**

Evaluate the following derivative:

$$\frac{d}{dx}\left(6x^4 - 4x^3\right)$$

A. 24x3 12x2

B. 24x3 + 12x2

C. 24x3 12x2

D. 24x3 + 12x2

Correct Answer: C

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**QUESTION 12**

The ratio of boys to girls in the graduating class of a school is 3:2. If there are a total of 430 students in the class, how many girls are in the graduating class?

A. 74

B. 86

C. 172

D. 215

Correct Answer: C

To find the total number of girls in the science class, we must first find the fraction of students in the class who are girls. For every set of 5 students, 2 students are girls, yielding a fraction of 2/5 . Thus, the total number of girls in the class is

$\frac{2}{5} \times 430 = 172.$