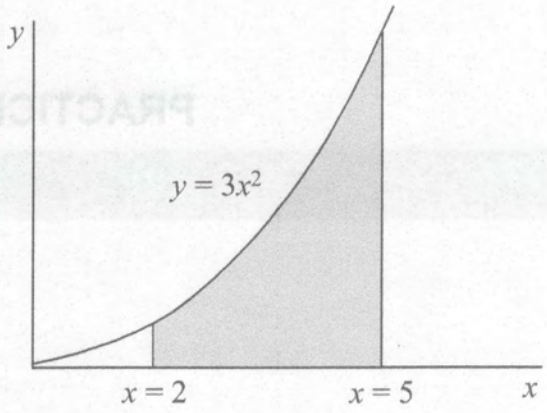
1. The area of the shaded portion of the figure shown below is most nearly:



- ○ A. 18
- ○ B. 39
- ○ C. 117
- ○ D. 133

2. The indefinite integral of $x^3 - x + 1$ is:

- ○ A. $3x^2 - 1 + C$
- ○ B. $\frac{x^4}{3} - \frac{x^2}{2} + 1 + C$
- ○ C. $\frac{x^4}{3} - \frac{x^2}{2} + 1$
- ○ D. $\frac{x^4}{4} - \frac{x^2}{2} + x + C$

NEXT→

3. The roots of $F = \dfrac{x^3 + 6x^2 + 11x + 6}{x + 1}$ are most nearly:

- ○ A. $-1, -2, -3$
- ○ B. $2, -3$
- ○ C. $-2, -3$
- ○ D. $2, 3$

4. The equation of a sphere with its center at (0, 1, −2) and a radius of 9 is:

- ○ A. $x^2 + (y - 1)^2 + (z + 2)^2 = 81$
- ○ B. $x^2 + (y + 1)^2 + (z - 2)^2 = 81$
- ○ C. $(x + 1)^2 + (y + 1)^2 + (z + 2)^2 = 81$
- ○ D. $(x + 1)^2 + (y + 1)^2 + (z + 2)^2 = 9$

5. The term $\dfrac{(1 - i)^2}{(1 + i)^2}$, where $i = \sqrt{-1}$, is most nearly:

- ○ A. -1
- ○ B. $-1 + i$
- ○ C. 0
- ○ D. $1 + i$

NEXT→

6. Which of the following is a unit vector perpendicular to the plane determined by the vectors $\mathbf{A} = 2\mathbf{i} + 4\mathbf{j}$ and $\mathbf{B} = \mathbf{i} + \mathbf{j} - \mathbf{k}$?

- ○ A. $-2\mathbf{i} + \mathbf{j} - \mathbf{k}$
- ○ B. $\frac{1}{\sqrt{5}}(\mathbf{i} + 2\mathbf{j})$
- ○ C. $\frac{1}{\sqrt{6}}(-2\mathbf{i} + \mathbf{j} - \mathbf{k})$
- ○ D. $\frac{1}{\sqrt{6}}(-2\mathbf{i} - \mathbf{j} - \mathbf{k})$

7. The following data have been collected:

Test	Average Score
1	85
2	87
3	95
4	90
5	85
6	88
7	90
8	90
9	91

Which of the following statements is true?

- ○ A. The median and the mode are equal.
- ○ B. The mean and the median are equal.
- ○ C. The mean and the mode are equal.
- ○ D. The mean is larger than both the mode and the median.

NEXT→

10. The only point of inflection on the curve representing the equation $y = x^3 + x^2 - 3$ is at:

- ○ A. $x = -\frac{2}{3}$
- ○ B. $x = -\frac{1}{3}$
- ○ C. $x = 0$
- ○ D. $x = \frac{1}{3}$

11. A spreadsheet display shows the following values in Column A:

	A	B
1	–2	
2	–1	
3	0	
4	1	
5	2	

Cell B1 contains the formula \$A1^3 + A\$1^2 – 3. The formula in Cell B1 is copied down in Column B with automatic cell referencing. The formula in Cell B5 will be:

- ○ A. \$A1^3 + A\$5^2 – 3
- ○ B. A5^3 + B\$1^2 – 3
- ○ C. \$A5^3 + A\$1^2 – 3
- ○ D. A5^3 + A5^2 – 3

NEXT→