Differentiation

1. $\frac{d}{dx}\left(\sqrt{x}+x^2+5\right)$

(1) $\frac{1}{2x}+2x$ (2) $\frac{1}{2\sqrt{x}}+2x$

(3) $\frac{1}{2\sqrt{x}}+2x+1$ (4) $\frac{1}{\sqrt{x}}+2x$

2. $\frac{d}{dx}\left(\frac{1}{x}+x^3\right)$

(1) $-\frac{1}{x^2}+3x^2$ (2) $-\frac{1}{x}+x^2$

(3) $-\frac{1}{x^2}+x^2$ (4) Zero

3. $\frac{d}{dx}(x^{5/2})$

(1) $\frac{5}{2}x$ (2) $\frac{5}{2}x^{3/2}$

(3) $\frac{5}{2}\sqrt{x}$ (4) $5\sqrt{x}$

4. $\frac{d}{dx}(\sin 30°)$ is equal to

(1) cos 30° (2) cosec 30°

(3) 0 (4) sin 30°

5. If $y = 4x^2 - 2x + 4$ then find $\frac{dy}{dx}$

(1) $8x - 2x$ (2) $8x - 2$

(3) $8x - 2 + 4$ (4) $4x + 4$

6. If $y = x^2 + 4x^3 - 8x + 4$, then find $\frac{dy}{dx}$

(1) $2x + 4x^2 - x$ (2) $2x + 12x^2 - 8$

(3) $2x + 4x^3 - 8$ (4) $2x + 12x^2 - x$

7. $\frac{d}{dx}\left(\sqrt{x}+\frac{1}{\sqrt{x}}\right)^2$ is equal to:

(1) $1+\frac{1}{x^2}$ (2) $-1+\frac{1}{x^2}$

(3) $1-\frac{1}{x^2}$ (4) x^2-1

8. $y = (1 - x^2)^{10}$, then find $\frac{dy}{dx}$.

(1) $10(1 - x^2)^9$, (2) $10(1 - x^2)^9 x^2$

(3) $-20x (1 - x^2)^9$ (4) Not differentiable

9. If $y = (2 - x^2)^4$, then find $\frac{dy}{dx}$

(1) $4(2 - x^2)^3 \times (2x)$ (2) $4(2 - x^2)^3$

(3) $4(2 - x^2) \times 2x$ (4) $-8x (2 - x^2)^3$

10. $y = (x + 3)^{1/2}$ then find $\frac{dy}{dx}$

(1) $\frac{1}{2\sqrt{x+3}}$ (2) $\frac{1}{4\sqrt{x+3}}$

(3) $\frac{1}{2\sqrt{x-8}}$ (4) None of these