Derivative Applications

Critical & Extreme Points

Extreme: Second Derivative Test

1. *second derivative test* $4 - x^2$

2. *second derivative test* $x^2 - 2x - 3$

3. *second derivative test* $x^3 - 3x + 1$

4. *second derivative test* $x^2 - 6x + 8$

5. *second derivative test* $x^3 - 3x$

6. *second derivative test* $(x + 5)^2$

7. *second derivative test* $\dfrac{1}{x^2} + \dfrac{1}{x}$

8. *second derivative test* $\dfrac{2x^2 + 6}{x}$

9. *second derivative test* $\dfrac{1}{9 + x^2}$

10. *second derivative test* $\dfrac{3}{x^3 - 1}$

Answers

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Critical & Extreme Points

Extreme: Second Derivative Test

1. Maximum $\left(0,4\right)$

2. Minimum $\left(1,-4\right)$

3. Maximum $\left(-1,3\right)$,Minimum $\left(1,-1\right)$

4. Minimum $\left(3,-1\right)$

5. Maximum $\left(-1,2\right)$,Minimum $\left(1,-2\right)$

6. Minimum $\left(-5,0\right)$

7. Minimum $\left(-2,-\dfrac{1}{4}\right)$

8. Maximum $\left(-\sqrt{3},-4\sqrt{3}\right)$,Minimum $\left(\sqrt{3},4\sqrt{3}\right)$

9. Maximum $\left(0,\dfrac{1}{9}\right)$

10. Inconclusive $\left(0,-3\right)$