Calculus Practice: Use Derivatives to Analyze Functions 6b

For each problem, find the x-coordinates of all points of inflection.

1) $f(x) = x^5 - 2x^3 + 3$

2) $y = -2x^2 + 12x - 17$

3) $f(x) = -x^5 + 2x^3 - 2$

4) $y = x^2 + 4x + 1$

5) $y = -x^5 + 2x^3 + 3$

6) $y = x^5 - 2x^3$

7) $f(x) = -x^3 + 2x^2 - 4$

8) $y = x^5 - 3x^3 - 2$

9) $f(x) = x^4 - 4x^2 + 1$

10) $f(x) = x^3 - 11x^2 + 39x - 41$

11) $f(x) = -x^3 - 4x^2 - 4x$

12) $y = x^3 - 15x^2 + 72x - 113$

13) $f(x) = -x^3 + 15x^2 - 72x + 111$

14) $y = \frac{x^2}{2} - 2x - 2$

15) $y = -x^5 + 3x^3 + 1$

16) $y = x^3 - 4x^2 + 4$

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For each problem, find the x-coordinates of all points of inflection.

1) $f(x) = x^5 - 2x^3 + 3$

Inflection points at: $x = -\frac{\sqrt{15}}{5}, 0, \frac{\sqrt{15}}{5}$

2) $y = -2x^2 + 12x - 17$

No inflection points exist.

3) $f(x) = -x^5 + 2x^3 - 2$

Inflection points at: $x = -\frac{\sqrt{15}}{5}, 0, \frac{\sqrt{15}}{5}$

4) $y = x^2 + 4x + 1$

No inflection points exist.

5) $y = -x^5 + 2x^3 + 3$

Inflection points at: $x = -\frac{\sqrt{15}}{5}, 0, \frac{\sqrt{15}}{5}$

6) $y = x^5 - 2x^3$

Inflection points at: $x = -\frac{\sqrt{15}}{5}, 0, \frac{\sqrt{15}}{5}$

7) $f(x) = -x^3 + 2x^2 - 4$

Inflection point at: $x = \frac{2}{3}$

8) $y = x^5 - 3x^3 - 2$

Inflection points at: $x = -\frac{3\sqrt{10}}{10}, 0, \frac{3\sqrt{10}}{10}$

9) $f(x) = x^4 - 4x^2 + 1$

Inflection points at: $x = -\frac{\sqrt{6}}{3}, \frac{\sqrt{6}}{3}$

10) $f(x) = x^3 - 11x^2 + 39x - 41$

Inflection point at: $x = \frac{11}{3}$

11) $f(x) = -x^3 - 4x^2 - 4x$

Inflection point at: $x = -\frac{4}{3}$

12) $y = x^3 - 15x^2 + 72x - 113$

Inflection point at: $x = 5$

13) $f(x) = -x^3 + 15x^2 - 72x + 111$

Inflection point at: $x = 5$

14) $y = \frac{x^2}{2} - 2x - 2$

No inflection points exist.

15) $y = -x^5 + 3x^3 + 1$

Inflection points at: $x = -\frac{3\sqrt{10}}{10}, 0, \frac{3\sqrt{10}}{10}$

16) $y = x^3 - 4x^2 + 4$

Inflection point at: $x = \frac{4}{3}$