

Name : _____

Score : _____

Teacher : _____

Date : _____

Understanding of Critical Points

Find the critical points, discontinuities and the intervals where the function is increasing and decreasing.

1) $y = -2x^3 - 9x^2 + 60x - 18$

2) $y = x^3 + 15x^2 + 75x - 14$

3) $y = 3x^4 - 32x^3 + 102x^2 - 120x + 20$

4) $y = x^3 + 6x^2 + 9x + 14$

5) $y = -3x^4 + 4x^3 + 30x^2 + 36x - 14$

6) $y = x^2 + 4x + 22$

7) $y = x^2 + 10x - 6$

8) $y = x^4 + 8x^3 - 30x^2 - 400x - 7$

9) $y = 3x^4 + 28x^3 + 12x^2 - 480x + 16$

10) $y = -x^2 + 2x + 22$



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Understanding of Critical Points

Find the critical points, discontinuities and the intervals where the function is increasing and decreasing.

1) $y = -2x^3 - 9x^2 + 60x - 18$

Critical Point at $x = -5, 2$

No discontinuities.

Decreasing: $(-\infty, -5), (2, \infty)$

Increasing: $(-5, 2)$

2) $y = x^3 + 15x^2 + 75x - 14$

Critical Point at $x = -5$

No discontinuities.

Increasing: $(-\infty, \infty)$

3) $y = 3x^4 - 32x^3 + 102x^2 - 120x + 20$

Critical Point at $x = 1, 2, 5$

No discontinuities.

Decreasing: $(-\infty, 1), (2, 5)$

Increasing: $(1, 2), (5, \infty)$

4) $y = x^3 + 6x^2 + 9x + 14$

Critical Point at $x = -3, -1$

No discontinuities.

Increasing: $(-\infty, -3), (-1, \infty)$

Decreasing: $(-3, -1)$

5) $y = -3x^4 + 4x^3 + 30x^2 + 36x - 14$

Critical Point at $x = -1, 3$

No discontinuities.

Increasing: $(-\infty, 3)$

Decreasing: $(3, \infty)$

6) $y = x^2 + 4x + 22$

Critical Point at $x = -2$

No discontinuities.

Decreasing: $(-\infty, -2)$

Increasing: $(-2, \infty)$

7) $y = x^2 + 10x - 6$

Critical Point at $x = -5$

No discontinuities.

Decreasing: $(-\infty, -5)$

Increasing: $(-5, \infty)$

8) $y = x^4 + 8x^3 - 30x^2 - 400x - 7$

Critical Point at $x = -5, 4$

No discontinuities.

Increasing: $(-\infty, 4)$

Decreasing: $(4, \infty)$

9) $y = 3x^4 + 28x^3 + 12x^2 - 480x + 16$

Critical Point at $x = -5, -4, 2$

No discontinuities.

Decreasing: $(-\infty, -5), (-4, 2)$

Increasing: $(-5, -4), (2, \infty)$

10) $y = -x^2 + 2x + 22$

Critical Point at $x = 1$

No discontinuities.

Increasing: $(-\infty, 1)$

Decreasing: $(1, \infty)$

