Task card 1 Derivative Tests: Critical Points...

On what interval(s) is $f(x) = -x^3 + 3x^2 + 9x - 2$ increasing?

Task card 2 Derivative Tests: Critical Points...

On what interval(s) is $f(x) = x^3 + 3x^2 - 5$ decreasing?

Task card 3 Derivative Tests: Critical Points...

Find the inflection point of $f(x) = x^3 - 3x^2 - 2$.

Task card 4 Derivative Tests: Critical Points...

On what interval is $f(x) = -x^3 - 9x^2 - 24x + 6$ concave up?

Task card 5 Derivative Tests: Critical Points...

Find the local maximum value of $f(x) = -x^3 + 9x^2 - 15x - 2$.

Task card 6 Derivative Tests: Critical Points...

Find the critical numbers of $f(x) = x^3 - 6x^2 - 15x + 3$.

Task card 7 Derivative Tests: Critical Points...

Find the local maximum value of $f(x) = x^3 + 3x^2 - 24x - 8$.

Task card 8 Derivative Tests: Critical Points...

On what interval(s) is $f(x) = -x^3 - 6x^2 - 9x - 1$ increasing?

Task card 9 Derivative Tests: Critical Points...

On what interval(s) is $f(x) = 2x^3 + 6x^2 - 18x + 4$ increasing?

Task card 10 Derivative Tests: Critical Points...

On what interval(s) is $f(x) = -x^3 - 3x^2 + 24x + 6$ decreasing?

Task card 11 Derivative Tests: Critical Points...

On what interval is $f(x) = x^3 - 9x^2 + 15x - 2$ concave down?

Task card 12 Derivative Tests: Critical Points...

$f(x) = -x^3 + 12x + 4$ has a critical number at $x = 2$. Use the second derivative test: is it a local maximum or a local minimum?

Task card 13 Derivative Tests: Critical Points...

Find the point where f(x) = $-x^3 + 12x^2 - 45x - 2$ has a local minimum.

Task card 14 Derivative Tests: Critical Points...

Find the inflection point of f(x) = $-x^3 + 9x^2 - 24x + 7$.

Task card 15 Derivative Tests: Critical Points...

f(x) = $-x^3 + 6x^2 + 3$ has a critical number at x = 4. Use the second derivative test: is it a local maximum or a local minimum?

Task card 16 Derivative Tests: Critical Points...

On what interval(s) is f(x) = $-2x^3 + 18x^2 - 30x - 7$ decreasing?

Task card 17 Derivative Tests: Critical Points...

On what interval(s) is f(x) = $-x^3 + 12x$ increasing?

Task card 18 Derivative Tests: Critical Points...

On what interval(s) is f(x) = $2x^3 - 24x^2 + 90x - 8$ decreasing?

Task card 19 Derivative Tests: Critical Points...

On what interval is $f(x) = -x^3 - 3x^2 - 4$ concave down?

Task card 20 Derivative Tests: Critical Points...

$f(x) = -2x^3 + 6x^2 + 48x - 6$ has a critical number at $x = 4$. Use the second derivative test: is it a local maximum or a local minimum?

Task card 21 Derivative Tests: Critical Points...

Find the point where $f(x) = 2x^3 + 6x^2 - 48x + 10$ has a local minimum.

Task card 22 Derivative Tests: Critical Points...

Find the inflection point of $f(x) = x^3 + 6x^2 + 9x + 7$.

Task card 23 Derivative Tests: Critical Points...

Find the point where $f(x) = -2x^3 + 18x^2 - 48x - 9$ has a local minimum.

Task card 24 Derivative Tests: Critical Points...

Find the inflection point of $f(x) = -2x^3 + 6x^2 + 48x - 10$.

Derivative Tests: Critical Points & Concavity Task Cards

Recording sheet · Grade 12 · Write critical numbers like x = -1 or x = 3, points like (2, -5), and intervals as inequalities from left to right, like x < -1 or x > 3, or -1 < x < 3. For a local maximum or minimum value, give the y-value. For the second derivative test, answer maximum or minimum.

Scan to check your answers

Name: _____ Date: _____

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
17	18	19	20
21	22	23	24

Derivative Tests: Critical Points & Concavity Task Cards: Answer Key

Grade 12 · Medium

The answers online

1. -1 < x < 3	**2.** -2 < x < 0	**3.** (1, -4)
4. x < -3	**5.** 23	**6.** x = -1 or x = 5
7. 72	**8.** -3 < x < -1	**9.** x < -3 or x > 1
10. x < -4 or x > 2	**11.** x < 3	**12.** maximum
13. (3, -56)	**14.** (3, -11)	**15.** maximum
16. x < 1 or x > 5	**17.** -2 < x < 2	**18.** 3 < x < 5
19. x > -1	**20.** maximum	**21.** (2, -46)
22. (-2, 5)	**23.** (2, -49)	**24.** (1, 42)