Name_____

Assignment: Maxima and Minima

For each problem, find all points of absolute minima and maxima on the given interval.

1) $f(x) = 2x^2 + 16x + 29$; $[-5, -2]$

2) $f(x) = x^3 - 4x^2 + 3$; $[-1, 3]$

3) $f(x) = x^2 - 8x + 16$; $[2, 6]$

4) $f(x) = 2x^2 + 12x + 14$; $[-5, -1]$

5) $f(x) = \dfrac{x^2}{2} - x - \dfrac{11}{2}$; $[0, 2]$

6) $f(x) = -x^3 - 11x^2 - 40x - 49$; $[-5, -2]$

7) $f(x) = x^2 - 6x + 5$; $[0, 2]$

8) $f(x) = -x^3 + 2x^2 - 3$; $[-1, 1]$

9) $f(x) = 2x^2 - 16x + 29$; $[2, 6]$

10) $f(x) = \dfrac{x^2}{2} + 2x - 3$; $[-5, -3]$

Answers to Assignment: Maxima and Minima

1) Absolute minimum: $(-4, -3)$
Absolute maximum: $(-2, 5)$

2) Absolute minimum: $\left(\dfrac{8}{3}, -\dfrac{175}{27}\right)$
Absolute maximum: $(0, 3)$

3) Absolute minimum: $(4, 0)$
Absolute maxima: $(2, 4), (6, 4)$

4) Absolute minimum: $(-3, -4)$
Absolute maxima: $(-5, 4), (-1, 4)$

5) Absolute minimum: $(1, -6)$
Absolute maxima: $\left(0, -\dfrac{11}{2}\right), \left(2, -\dfrac{11}{2}\right)$

6) Absolute minimum: $(-2, -5)$
Absolute maximum: $(-5, 1)$

7) Absolute minimum: $(2, -3)$
Absolute maximum: $(0, 5)$

8) Absolute minimum: $(0, -3)$
Absolute maximum: $(-1, 0)$

9) Absolute minimum: $(4, -3)$
Absolute maxima: $(2, 5), (6, 5)$

10) Absolute minimum: $\left(-3, -\dfrac{9}{2}\right)$
Absolute maximum: $\left(-5, -\dfrac{1}{2}\right)$