

## Assignment Relative Maxima and Minima

For each problem, find all points of relative minima and maxima.

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

2)  $y = -2x^2 + 8x - 10$

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

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

5)  $y = \frac{x^2}{2x + 4}$

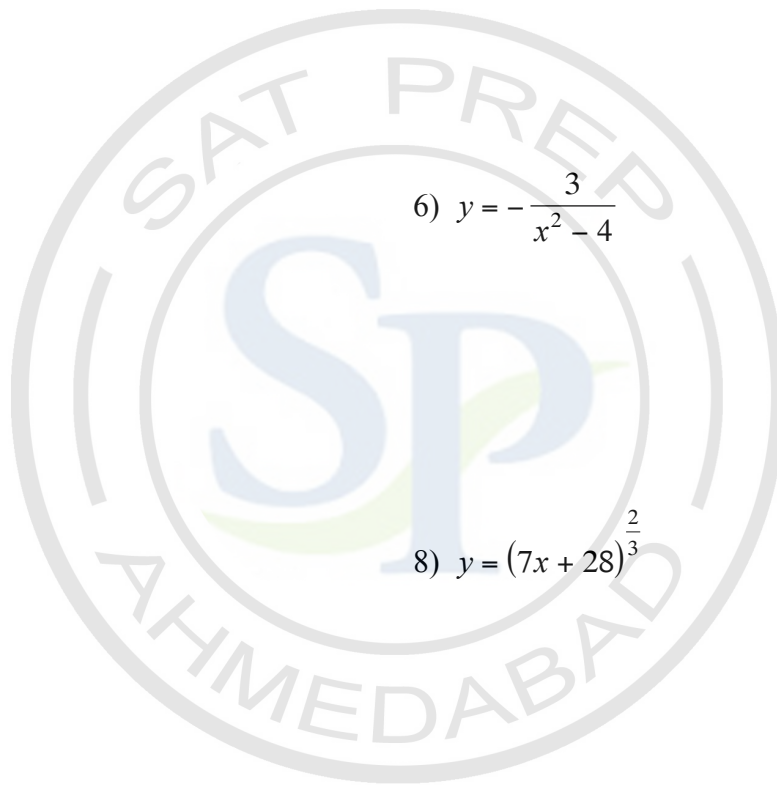
6)  $y = -\frac{3}{x^2 - 4}$

7)  $y = -(6x + 18)^{\frac{2}{3}}$

8)  $y = (7x + 28)^{\frac{2}{3}}$

9)  $y = \sin(2x); [-\pi, \pi]$

10)  $y = \cos(x); [-\pi, \pi]$



## Answers to Assignment Relative Maxima and Minima

- 1) No relative minima.  
Relative maximum:  $(0, 4)$
- 2) No relative minima.  
Relative maximum:  $(2, -2)$
- 3) Relative minimum:  $(0, -5)$   
Relative maximum:  $(2, -1)$
- 4) Relative minimum:  $\left(\frac{2}{3}, -\frac{4}{27}\right)$   
Relative maximum:  $(0, 0)$
- 5) Relative minimum:  $(0, 0)$   
Relative maximum:  $(-4, -4)$
- 6) Relative minimum:  $\left(0, \frac{3}{4}\right)$   
No relative maxima.
- 7) No relative minima.  
Relative maximum:  $(-3, 0)$
- 8) Relative minimum:  $(-4, 0)$   
No relative maxima.
- 9) Relative minima:  $\left(-\frac{\pi}{4}, -1\right), \left(\frac{3\pi}{4}, -1\right)$   
Relative maxima:  $\left(-\frac{3\pi}{4}, 1\right), \left(\frac{\pi}{4}, 1\right)$
- 10) Relative minima:  $(-\pi, -1), (\pi, -1)$   
Relative maximum:  $(0, 1)$

