Unit 4 WS 2
Calculus 1

Determine the increasing and decreasing intervals for the following functions.

1. $f(x) = 3x + 3$

2. $f(x) = (x+1)(x-2)$

3. $f(x) = x^3 - 1$

4. $f(x) = 2x^3 - 9x^2 + 12x$

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

6. $f(x) = \dfrac{x-1}{x^2}$

7. $f(x) = \dfrac{x}{x-2}$

8. $f(x) = \sin x \qquad [0, 2\pi]$

Find the all local maximum and local minimum using the 1st Derivative Test for the following functions.

9. $f(x) = x^3 - 3x$

10. $f(x) = x^4 + x^2 + 3$

11. $f(x) = x^3 - 12x + 1$

12. $f(x) = (x-2)^5$

13. $f(x) = \cos x \qquad [0, 2\pi]$

14. $f(x) = x^3 - 6x^2 + 4$

15. $f(x) = 12x^2 - 6x - 6$

16. $f(x) = \dfrac{5}{x^2 - x - 6}$