

## Calculus I – Worksheet #1 Slopes and Lines

1-4 Find slope of line between points and slope of line perpendicular to this same line.

1. (2,3), (-1,3)      2. (1,2), (1,-3)      3. (0,0) (-2,-4)      4.  $(\frac{1}{2}, 0), (0, -\frac{1}{3})$

5. Determine whether points A, B, C, and D form a parallelogram or not.

**Show work using slopes to justify answer. Graphing alone will not suffice. ( Find four slopes)**

A(-1,-2), B(1,3), C(2,0), D(-1,-1)

For 6-9, find the equation of the line (point-slope) containing the two given points:

6. (1,1), (2,1)      7. (-2,1), (2,-2)      8. (1,3), (3,1)      9. (0,0), (1,3)

For 10, find the slope and both intercepts of the line and graph:

10.  $2x - y = 4$

11. Find the line that passes through (1,2) and is parallel to the line:  $x + 2y = 3$

12. Find the line l through the point (-2,2) and perpendicular to the line:  $2x + y + 4 = 0$

13. Find the equation of the line that goes through (1,-3) and

(a) parallel to the line  $2y - 3x = 4$

(b) perpendicular to the line  $2y - 3x = 4$

14. Solve for **x** and give your solution without using absolute value symbols:  $|x - 2| \leq 5$

15. If  $f(x) = \sqrt{x+2}$  and  $g(x) = 2x$ , then find

- (a)  $f[g(x)]$       (b)  $g[f(x)]$       (c)  $f[f(x)]$       (d)  $g[g(x)]$

1. $m = 0$ ; $m_{\perp} = \text{undefined}$	2. $m = \text{undefined}$ ; $m_{\perp} = 0$	3. $m = 2$ ; $m_{\perp} = -\frac{1}{2}$	4. $m = \frac{2}{3}$ ; $m_{\perp} = -\frac{3}{2}$	5. see solutions tomorrow
6. $y = 1$	7. $y - 1 = \frac{-3}{4}(x + 2)$	8. $y - 3 = -1(x - 1)$	9. $y = 3x$	10. $m = 2$ ; x-int = (2,0) y-int. = (0, -4)
11. $y - 2 = \frac{-1}{2}(x - 1)$	12. $y - 2 = \frac{1}{2}(x + 2)$	13. $m = y + 3 = \frac{3}{2}(x - 1)$ $m_{\perp} = y + 3 = \frac{-2}{3}(x - 1)$	14. $-3 \leq x \leq 7$	15. 15a. $\sqrt{2x + 2}$ 15b. $2\sqrt{x + 2}$ 15c. $\sqrt{\sqrt{x + 2} + 2}$ 15d. $4x$