Calculus/Slopes of Tangents

1 Differentiation

1. Differentiate the following functions:
   (a) $\frac{dy}{dx} = 3x^2 - 8x + 7$
   (b) $\frac{dy}{dx} = 2x + 3$
   (c) $\frac{dy}{dx} = 6x^2 + 14x - 5$
   (d) $\frac{dy}{dx} = 3 - 2x$
   (e) $\frac{dy}{dx} = 2x + 5 - 3x^2$

2. Differentiate the following funcitons:
   (a) $f'(x) = 6x^2 - 10x$
   (b) $f'(x) = 2x - 18$
   (c) $f'(x) = 3x^2 + 28x - 9$
   (d) $f'(x) = 3 - 10x - 3x^2$
   (e) $f'(x) = 2x - 6x^2$

2 Slopes of Tangents ($\frac{dy}{dx}$ is the slope!!)

1. $m = 7$

2. $m = 13$

3. $m = -8$

4. $m = -5$

5. $m = -9$

6. $m = 43$

7. $4x - y - 5 = 0$

8. $x + y + 1 = 0$

9. $7x + y + 30 = 0$

10. $7x - y - 2 = 0$

11. $9x - y - 22 = 0$

12. $35x - y - 65 = 0$

13. $16x - y - 12 = 0$

14. $(-1, 7)$

15. $(1, 6)$

16. $(2, -18)$ $(-1, 12)$

17. $(-2, -16)$ $(4, 2)$