

WORKSHEET #6: DIFFERENTIATION

PART TWO : THE TANGENT LINE

NAME: _____

DATE: _____

CLASS: _____

SCORE: _____

Write down the equation of the line tangent to the given curve at the specified point.

1. $y = 3x^3 - 4x^2 - 5$ at $(2, 3)$

6. $y = 3 + x - 5x^2 + x^4$ at $(0, 3)$

2. $y = x^2 - 4x + 5$ at $(-2, 7)$

7. $y = 4x^2 + 5x + 2$ at $(1, 11)$

3. $y = 3x^2 + 4x - 8$ at $(0, -8)$

8. $y = 5 - 6x - 2x^3$ at $x = 1$

4. $y = \frac{1}{3}x^3 - x^2$ at $x = 0$

9. $y = 4x^3 + 2x^2 + 10x - 3$ at $(0, -3)$

5. $y = x^2 - 3x - 40$ at $x = 1$

10. $y = -x^2 + 4x$ at $y = 3$

11. Write down the equation of the line tangent to given curve $y = x^2 + 3x$ and parallel to $2x - y + 3 = 0$.
12. Write down the equation of the line tangent to given curve $y = 2x^2 + 4x + 1$ and parallel to $y = -2x + 3$.
13. Write down the equation of the line tangent to given curve $y = 5x^2 + 2x - 12$ and parallel to $y = 22x + 10$.
14. Write down the equation of the lines tangent to given curve $y = (x^2 + 1)^2$ and parallel to $2y - 16x - 10 = 0$.
15. Write down the equation of lines tangent to the curve $y = x^3 + 6x^2 - 15x - 2$ at $x = -5$ and at $x = 1$. Hence, find the coordinates of the point where the two tangents meet.