

## SATPREP

### Assignment: Properties of the Curve

Find the derivative of following function.

1.  $\frac{x^3}{y} = 1$

2.  $x^2 + y^3 = 4$

3.  $2y^3 + 4x^2 - y = x^6$

4.  $7y^2 + \sin(3x) = 12 - y^4$

5.  $e^x - \sin(y) = x$

6.  $4x^2 y^7 - 2x = x^5 + 4y^3$

7.  $\cos(x^2 + 2y) + x \cdot e^{y^2} = 1$

8.  $\tan(x^2 y^4) = 3x + y^2$

For problems 9 & 10 find the equation of the tangent line at the given point.

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

10.  $y^2 e^{2x} = 3y + x^2$  at  $(0, 3)$ .

11.  $3x + y^2 = x^2 - 19$  at  $(-4, 3)$

12.  $x^2 y = y^2 - 6x$  at  $(2, 6)$

13.  $2\sin(x)\cos(y) = 1$  at  $(\frac{\pi}{4}, -\frac{\pi}{4})$

Determine function is increasing, decreasing or not changing at the given point.

14.  $e^{1-x} \cdot e^{y^2} = x^3 + y$  at  $(1, 0)$

15.  $\sin(\pi - x) + y^2 \cos(x) = y$  at  $(\frac{\pi}{2}, 1)$