

## MHT CET 2024 PCM May 3 Shift 2 Answer Key

If  $y = \sec(\tan^{-1}x)$  then  $\frac{dy}{dx}$  at  $x = 1$

- A  $\frac{1}{2}$
- B 1
- C  $\frac{1}{\sqrt{2}}$
- D  $\sqrt{2}$

1.

Answer: C

If  $y = \log \left[ e^{3x} \left( \frac{x-4}{x+3} \right)^{\frac{2}{3}} \right]$  then find  $\frac{dy}{dx}$

2.

$$3 + \frac{4}{3} \left[ \frac{1}{x-4} - \frac{1}{x+3} \right]$$

Answer:

3.

Find the differential equation of the family of all circles, whose centre lies on x-axis and touches the y-axis at the origin.

$$2xy \frac{dy}{dx} = y^2 - x^2$$

Answer:

4.

If  $f(x) = 3x + 6$ ,  $g(x) = 4x + k$  and  $\underline{f \circ g(x)} = \underline{g \circ f(x)}$  then  $k = ?$

**Answer:  $k=9$**

5.

$$\int \frac{2x^2 - 1}{(x^2 + 4)(x^2 - 5)} dx =$$

**Answer:**

