

Application of Derivatives

Study Guide Ans.

① max of 6 at $x=8$ min of -3 at $x=-1$

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

③ $y+1 = \frac{4}{5}(x-2)$

④ A

⑤ C

⑥ C

⑦ E

⑧ $x=-1$ relative max

⑨ $x=0, x=1$

⑩ D

⑪ $x=-2$ because f' changes from $+$ to $-$

⑫ $(-1, 1) \cup (3, 5)$ because f' is increasing

⑬ $(0, \frac{\pi}{4}) \cup (\frac{\pi}{4}, 2\pi)$

⑭ $x=\pi$

⑮ B

⑯ $x=1$ and relative min because $f'=0$ and $f''>0$
by 2nd Derivative Test.

⑰ $x=1$

⑱ at $x=0$ the minimum slope is -2