

$$16/12 - 08$$

$$1/ \frac{8}{3} \ln 2 - \frac{7}{9}$$

$$2/ y = x^2$$

$$3/ y = -\frac{1}{6} e^x + \frac{1}{10} e^{7x} + \frac{1}{15} e^{-2x}$$

$$4/ 5\pi/2 \quad 5/ -5/3 \quad 6/ 4a \int_0^1 \sqrt{\frac{1-t^2 e^2}{1-t^2}} dt$$

$$7/ y = 2 N(0) (e^{-kt} - e^{-2kt}), \ln 2/k$$

$$8/ f(x) = \sin x - \sin 2x, (-2^{10})$$

$$17/4 - 08 \quad 1a/2 \quad b) 2 \quad 2/ y = (x+1) e^{2x}$$

$$3/ y = \tan\left(\frac{x^2-1}{2}\right) \quad 4/ y = \frac{1}{2}(e^x + \cos x - \sin x)$$

$$5/ \frac{15}{7} + \ln 2 \quad 6/ 1 \quad 7/ y(t) = y(0) e^{-ct}$$

$$x(t) = x(0) e^{-by(0)/2} + by(0) e^{-at}/2 + at, \max(0, \frac{1}{c} \ln b \frac{y(0)}{a})$$

$$21/8 - 08 \quad 1/ y = x e^x \quad 2/ y = e^{\frac{x^2-1}{3}} \quad 3/ y = \frac{1}{2}(e^x + e^{5x})$$

$$4/ \frac{7}{3} \quad 5/ f^{(0)}(0) = \frac{9}{2}, f^{(4)}(0) = -\frac{12}{7}, f^{(15)}(0) = \frac{15}{8}$$

$$\text{divergent} \quad 6/ \text{divergent} \quad 7/ 1/24 kg$$