Introducing Exponentials

Solve these (giving exact answers)…

a) $e^x = 5$

b) $e^x = \frac{1}{2}$

c) $e^{2x} = 5$

d) $e^{2x-1} = 5$

e) $e^x = e^{2x}$

f) $e^{-x} = e^{x^2-6}$

Solve these (giving exact answers)…

a) $lnx = 5$

b) $lnx = \frac{1}{2}$

c) $ln(2x) = 5$

d) $ln(2x-1) = 5$

e) $lnx = ln(2x)$

f) $lnx = -ln(x)$

Differentiate these…

a) $y = e^x$

b) $y = e^{3x}$

c) $y = e^{\frac{x}{2}}$

d) $y = 4e^{3x}$

e) $y = \frac{1}{3}e^{3x}$

f) $y = \frac{7}{2}e^{\frac{4x}{7}} + 5e^{\frac{x}{5}}$

Integrate these…

a) $y = e^x$

b) $y = e^{3x}$

c) $y = e^{\frac{x}{2}}$

d) $y = 4e^{3x}$

e) $y = \frac{1}{3}e^{3x}$

f) $y = \frac{7}{2}e^{\frac{4x}{7}} + 5e^{\frac{x}{5}}$

Introducing Exponentials

Solve these (these are exact answers)…

a) $x = ln5$

b) $x = ln\frac{1}{2}$

c) $x = \frac{ln5}{2}$

d) $x = \frac{ln5 + 1}{2}$

e) $x = 0$

f) $x = 2, -3$

Solve these (these are exact answers)…

a) $x = e^5$

b) $x = e^{\frac{1}{2}}$

c) $x = \frac{e^5}{2}$

d) $x = \frac{e^5 + 1}{2}$

e) $x = 0$, but ln(0) not possible

f) $x = \pm 1$, but ln(-1) not possible

Differentiate these…

a) $\frac{dy}{dx} = e^x$

b) $\frac{dy}{dx} = 3e^{3x}$

c) $\frac{dy}{dx} = \frac{1}{2}e^{\frac{x}{2}}$

d) $\frac{dy}{dx} = 12e^{3x}$

e) $\frac{dy}{dx} = e^{3x}$

f) $\frac{dy}{dx} = 2e^{\frac{4x}{7}} + e^{\frac{x}{5}}$

Integrate these…

a) $\int y\,dx = e^x$

b) $\int y\,dx = \frac{1}{3}e^{3x}$

c) $\int y\,dx = 2e^{\frac{x}{2}}$

d) $\int y\,dx = \frac{4}{3}e^{3x}$

e) $\int y\,dx = \frac{1}{9}e^{3x}$

f) $\int y\,dx = \frac{49}{8}e^{\frac{4}{7}x} + 25e^{\frac{x}{5}}$