Start here for
Question Number: **3**

a i) $\qquad mp = \left(\dfrac{x_2 - x_1}{2}, \dfrac{y_2 - y_1}{2} \right)$

$B(12, 6) \quad A(-2, -4)$

$M(5\not{0}, 1)$

ii) $\qquad \dfrac{rise}{run}, \quad m = \dfrac{y_2 - y_1}{x_2 - x_1} \qquad C(6, 8)$

$\qquad m = -\dfrac{1}{3}$

iii) $\qquad \angle NAM = \angle CAB \quad \left(\text{common}\right)$

$\qquad 2 \times AN = AC \quad \left(\text{midpoint}\right)$
$\qquad 2 \times AM = AB \quad \left(\text{midpoint}\right)$

$\qquad SAS \quad \therefore \text{similar}$

iv) $\qquad m = \dfrac{y_2 - y_1}{x_2 - x_1} \qquad {}_1 N(2, 2)$
$\qquad\qquad\qquad\qquad\qquad {}_2 M(5, 1)$

$\qquad \dfrac{1 - 2}{5 - 2}$

$\qquad m \quad -\dfrac{1}{3} \qquad y - y_1 = m(x - x_1)$

$\qquad\qquad\qquad\qquad y - 2 = -\dfrac{1}{3}x - \dfrac{2}{3}$
$\qquad\qquad\qquad\qquad 3y - 6 = -x - 2$

$eqn = x + 3y - 4 = 0$

v

$$d = \sqrt{\left(x_2 - x_1\right)^2 + \left(y_2 - y_1\right)^2}$$

$$= \sqrt{36 + 4}$$

6.32

$$= \sqrt{40}$$

$$= 2\sqrt{10}$$

vi $\triangle ABC = 44$ units

find pd from A to BC

$$pd = \left| \frac{ax + by + c}{\sqrt{a^2 + b^2}} \right|$$

$$y - y_1 = -\frac{1}{3}\left(x - x_1\right)$$

$$y - 8 = -\frac{1}{3}x - 2$$

$$3y - 24 = -x - 6$$
$$x + 3y - 18$$

10."

$$\frac{32}{\sqrt{1 + 9}}$$

$$= \frac{32}{\sqrt{10}}$$

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b i)

$$y = \ln x$$
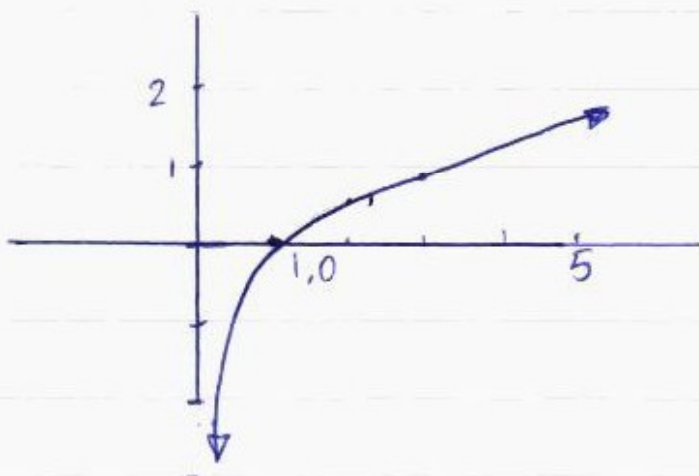
ii) $\frac{h}{2}\left[\left(y_0 + y_n\right) + 2\left(y_1 + y_2 \cdots\right)\right]$

$h = \dfrac{b - a}{n}$

$\frac{2}{3}\left[\left(\ln 1 + \ln 3\right) + 2\left(\ln 2\right)\right]$

$\doteqdot 0.828 \ldots$

iii) less than the trapezoidal rule only mows straight lines so lines so, so it would be less