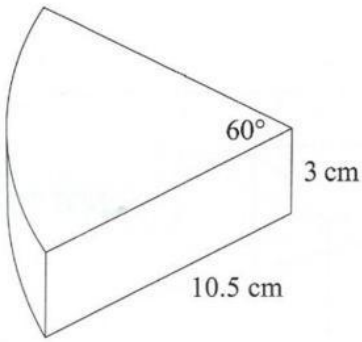
3. The diagram shows a slice of cake, cut from a large cylindrical shaped cake. The cake is of radius 10.5 cm and thickness of 3 cm. The cross-section of the slice is a sector of a circle making an angle of 60° at the centre.



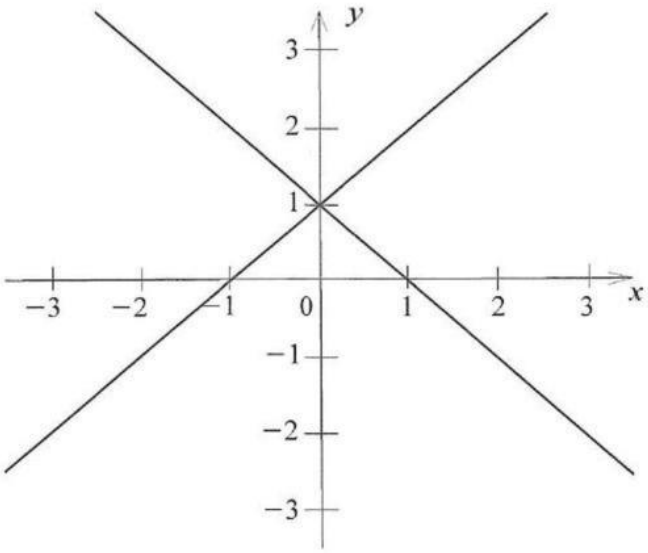
NOT TO SCALE

Taking $\pi = \frac{22}{7}$, calculate the volume of the slice of cake. [3]

Area of Sector = m^2

Area of Slice = m^3

3.

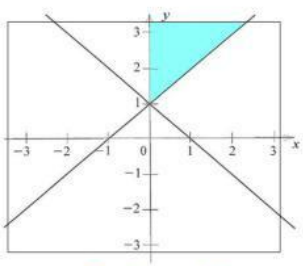


The diagram shows the graph of the two lines $y = x + 1$ and $y = 1 - x$.

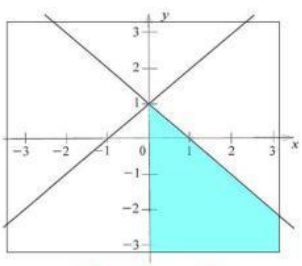
(a) **Sketch** a copy of the diagram and label the graph of each line with its correct equation. [2]

(b) On your diagram, shade the region for which the following three inequalities are satisfied.

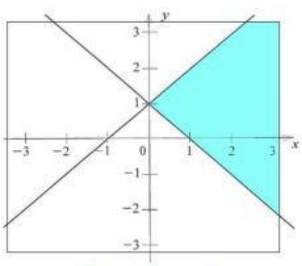
$$\begin{cases} y \geq 0 \\ y \leq x + 1 \\ y \geq 1 - x \end{cases}$$ [3]



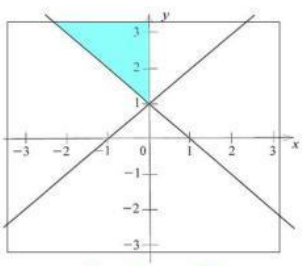
Option A



Option B



Option C



Option D

LIVEWORKSHEETS

3. A straight-line graph passes through the points (–6,1) and (0,5).

(a) Calculate the slope (gradient) of this line. [2]

Vertical Movement =

Horizontal Movement =

Slope =

(b) Write down an equation for the graph of this line. [1]

y = x +

3. Given the matrix operation below, find the values of a, b and c.

$$\begin{pmatrix} 3 & a \\ 2c & 7 \end{pmatrix} - \begin{pmatrix} 4 & 1 \\ c & -3 \end{pmatrix} = \begin{pmatrix} -1 & 5 \\ -8 & b \end{pmatrix}$$

[3]

Equation involving a

=

a =

Equation involving b

=

b =

Equation involving c

=

c =

3. Matrix A is defined as $A = \begin{pmatrix} 4 & 6 \\ 3 & 5 \end{pmatrix}$.

Find the following.

(a) A^2 [3]

(b) A^{-1} [3]

LIVEWORKSHEETS

3. Given that $\overrightarrow{PQ} = \begin{pmatrix} -3 \\ 6 \end{pmatrix}$ and $\overrightarrow{RQ} = \begin{pmatrix} 5 \\ -9 \end{pmatrix}$, find $|\overrightarrow{PR}|$. [4]

Vertical Movement =

Horizontal Movement =

Magnitude =

3. (a) Find the values of x and y given the operation $\begin{pmatrix} 2 & 3 \\ y & -2 \end{pmatrix}\begin{pmatrix} 1 \\ -4 \end{pmatrix} = \begin{pmatrix} x \\ 2 \end{pmatrix}$. [4]

Row 1 by Column 1 Equation

=

x =

Row 2 by Column 1 Equation

=

y =

(b) If the matrix $\begin{pmatrix} 4 & n \\ -1 & 1 \end{pmatrix}$ has a determinant of 10, find the value of n. [2]

Determinant Formula

= 10

n =

LIVEWORKSHEETS