8. The function f(x) is defined as follows:

$f(x) = \frac{1}{2}(x^3 - 2x - 5)$

(a) Copy ad complete the table below

x	-5	-4	-3	-2	-1	0	1	2	3
f(x)									5

(b) Taking 2 cm to represent 1 unit on both axes, draw the graph of $y = f(x)$.
(c) Write down the coordinates of the turning point.
(d) Use your graph to estimate the values of x when $f(x) = 1.8$
(e) On the same axes draw the line $y = 2x - 4$
(f) Write down the equation whose solutions are the points of intersection of the curve and the line.

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9. On graph paper, taking 1 cm 1 unit, draw the x- and y-axes from -6 to $+6$ for each axis.

(a) Draw the triangle T with vertices P(2, 1), Q(2, 3) and R(5, 1).

Constructing on the graph, and writing down the coordinates of the vertices,

(b) translate by vector $\begin{pmatrix} -6 \\ 5 \end{pmatrix}$ the triangle T and label it T_1.
(c) reflect T in the y-axis and label it T_2.
(d) rotate T through 90° clockwise and label it T_3.
(e) enlarge about the origin by scale factor 2 and label it T_4.

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7. (i)

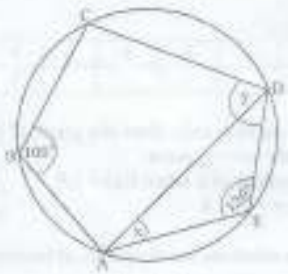

Figure 5

In Figure 5, all the points lie on the circumference of the circle, with AE = ED, angle AED = 120° and angle ABC = 100°. Angle EAD = x° and angle EDC = y°.

(a) Give the name of the figures CDEAB, EAD and BADC.
(b) Find the value of x.
(c) Calculate the values of y
(d) State the sum of angles BA and BCD.

(ii)

Figure 6

Figure 6 shows a circle centre O and C a point on the circumference. X is a point on AC such that AX = 8 cm XC = 1 cm and angle AOX = 90°.

(a) Show that triangles AOX and ACB are similar.
(b) Find the radius of the circle.
(c) Determine the ratio $\frac{\text{area of } \Delta ABC}{\text{area of } \Delta AXO}$