2. *Coordinates and graphics*

1.	(i) k $\left(\frac{3-7}{2},\frac{4+2}{2}\right)=(-2,3)$ p $\left(\frac{3+1}{2},\frac{4-2}{2}\right)=(2,1)$ (ii) $G_1=\frac{3-2}{-2-2}=\frac{-1}{2}$ $G_2=2$ Mid $p+kp=\left(\frac{-2+2}{2},\frac{3+1}{2}\right)=(0,2)$ $\therefore equation \quad y=2x+c$ $when \quad x=0, y=2, then \quad c=2$ $hence, \quad y=2x+2$	B_1 for both p and k ✓ B_1 for both G_1 and G_2 ✓ r identified $\frac{B_1}{3}$

2. *Let the exterior ∠ be x*
   6.5x + x = 180
   7.5x = 180⁰
   x = 24

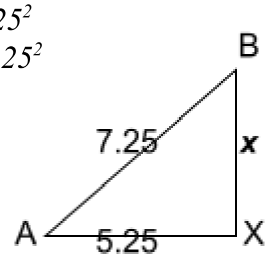
   No. of sides = $\frac{360}{24}$
   = 15 sides.

3. $\frac{(2n-4)\,90}{(2(n+2)-4)90}=\frac{3}{4}$
   $\frac{2n-4}{2n}=\frac{3}{4}$
   8n – 16 = 6n
   2n = 16
   n = 8
   (2(8) – 4) 90
   = 12 x 90 = 1080

4. $\frac{15}{2}\frac{b}{2}=60$
   15b = 60 x 4
   b = 16cm (diagonal)
   ∟ ⇒ $=\sqrt{8^2+7.5^2}$
   $\therefore per = 4\sqrt{8^2+7.5^2}$

$= 43.86cm$

5. $x^2 = 7.25^2 – 5.25^2$
$x = \sqrt{7.25^2 – 5.25^2}$
$= 52.5625$
$\underline{27.5625}$ -
$\sqrt{25}$
$= 5cm$



$BC = 15.25 + 5 = 22.25cm$
Arc $CD = {}^{90}/_{360}$ X 3.142 X 2 X 22.25
$= 34.65475$
Perimeter = AB + BC + CD + DE + EA
$= 15.25 + 7.25 + 22.25 + 34.95 + 5.25$
$= 84.95cm$

6. $AB^2 = 10^2 – 8^2 = 100 – 64$
$AB^2 = 36$
$AB = 6cm$
$Cos\ (90^o – x^{o)}\ {}^8/_{10} = {}^4/_5$

Attempt to get x by using +e = 180^o
e = $\frac{(2n-4)90}{n}$
number of sides

7. $x -20 + 3x = 180^oC$
$4x = 200$
$x = 50^o$

8. $2x + 40 + x – 25$
$3x + 15 + 9 = 180$
$3x + 15 = 29$
$9 = ½ (3x + 15)$
$3x + \frac{3x}{2} = 180 -15-\frac{15}{2}$
$x = 35^o$
$x = 35 = 10^o$
$½ (10 + 110) = 60^o$

9. $\frac{1260}{90} = 14rt\ \angle s$
Sum of interior $\angle s$
$(2n -4)\ rt\ \angle s$
$2n-4 = 14$
$n = 9$ 9 sided polygon

10. $N = 50 + 40 = 90^o$
Alternative angles

11. $5^{3(y+1)} + 5^{3y} = 630$
Let $x = 5^{3y}$
$5^3 \times 5^{3y} + 5^{3y} =630$
$125x + x = 630$
$x = 5$
$5^{3y} = 5^1$

$3y = 1$
$y = {}^1/_3$

12. $\frac{360}{n} + 108 = 180 - \frac{360}{n}$
$360 + 108n = 180n – 360$
$-72n = -720$
$n = 10$

13. Let exterior angle be x
$\frac{4x}{4} = \frac{180^o}{4}$
$x = 45^o$
$n=\underline{360}$
Exterior angle
$n = \frac{360}{45}$
$= 8sides$

14. a) Let < BDC = ø
$A^2 = 5^2 + 8^2 – 2 x 5 x 8 \cos ø$
$\cos ø = \frac{89 – 16}{80} = \frac{73}{80} = 0.9125$
$Ø = 24°9^1 = 24° 8^1$

b) Area of ABD
$= ½ x 8 x 10 \sin 24°9^1$
$= 40 x 0.4091$
$= 16.36cm^3$ 16.37 16.38

15. (a) $\angle CDF = 100-60=40^o$ (exterior angle of a Δ)
(b) $\angle BDE = 20^o$ (DE is bisector of BDG)
$\therefore \angle ABD = 20^o$ (alternate angles)

16. $4x + x – 30 = 180$
$5x = 210°$
$x = 42$
$(x -30)n = 360°$
$12n = 360°$
$n = \frac{360°}{12}$
$n = 30$

17. $180(n-20) = 1440$
$n- 2 = \frac{1440}{180} = 8$
$n = 10$
Decagon

18. <PQR =<SRT = x (Alt <SPQ //RS)
$\therefore 5x + 3x + x = 180°$ <'s of Δ

$9x = 180°$

$X = 20°$

$\therefore 5 \times 20 + y = 180$

$y = 180 - 120 = 60$

19. Let the interior $\angle$ be x and exterior be y

$\therefore x + y = 180$

$+$

$\underline{x - y = 132}$

$2x \quad = 312$

$x = 156$

$y = 180 - 156 = 24^o$

No. of sides (n) $= \frac{360^o}{24} = 15$

$= 15$ sides