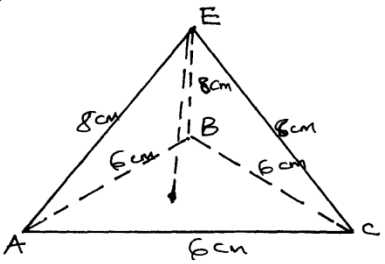
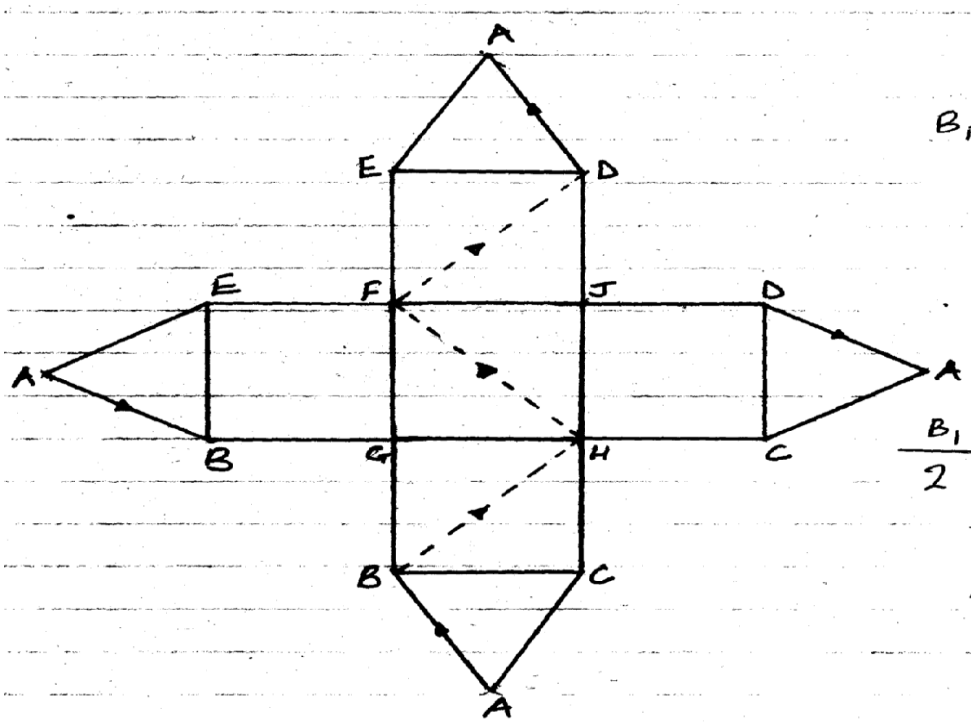
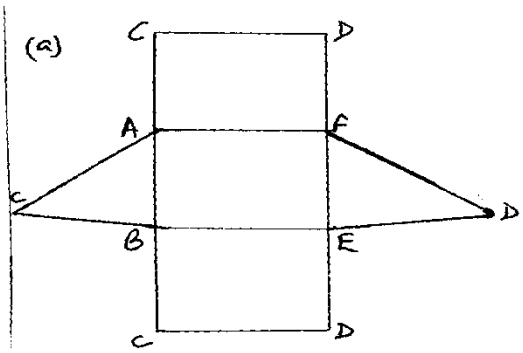
2. *Common solids*

1.	a)  b) The figure is tetrahedron	B1 B1	Sketch completed and the lines dotted.
		02	

2. *Sketch of the net of the solid (not free hand) base n\must be square, other lengths must be within. Labeling of all verticals with the path correctly shown. AB and DA may be shown one.*



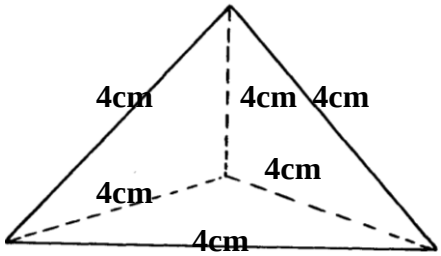
3. *(a)*



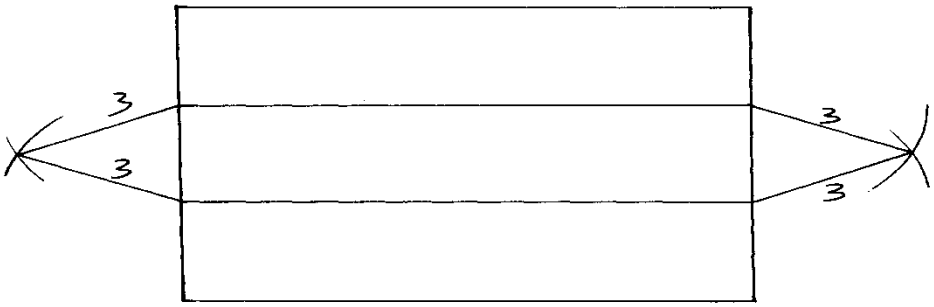
(b) Total surface area

$= 2 \quad 9 \times 3 \times 4 \times 2 + 10\,(6 + 5 + 7)$
$= 29.39 + 180 = 209.4cm^2$

4.



5.



3. Indices

1. $3^4 \times 3^{4x} + 3^{4x} = 246$

$3^{4x}\,(81 + 1) = 246$

$\frac{82}{82} \times 3^{4x} = \frac{246}{82}$ (3)

$3^{4x} = 3^1$ (1) ✓

$4x = 1$

$x = \frac{1}{4}$

2. $5^{2y} \times 5^1 = 4^{(5y+1)} - 15$

$5^y \times 5^y \times 5^1 = 4 \times 5y \times 51 - 15$

Let $5y = t$

$5t^2 = 20t - 15$

$t^2 = 20t - 15$

$t^2 - 4t + 3 = 0$

$(t-1)(t-3) = 0$

$t = 1$ or 3

$5y = 1 = 5^o$

Or $5y = 3$ $y = \frac{\log 3}{\log 5 = 0.6826}$

3. $CBD = 90 - 42 = 48^o$

Angle of triangle add to 180^o

$DOB = 180^o - 42 = 138^o$

Opposite angles of cyclic quadrilateral add to 180^o

DAB = $\frac{138^o}{2} = 69^o$

Angle at circumference is half the nagle substended at centre by same chord

CDA
ABD= 90 – 48 = 42o
ADB = 180 –(69+42)
180-111=69^o
CDA = 90 + 69^o = 159^o
Show ΔADB is asoccesters
∠DAB = 69^o
∠DAB = 69^o
∠ADB = 69^o
∠ABD = 42^o
So two angles are equal hence it is asoccesters

4. $25^{\frac{3}{4}} = (25^{\frac{1}{2}})^{3/2} = 5$

$0.9^2 = (\frac{9}{10})^2 = \frac{92}{100}$

$2^2 = 2^2$

$$\frac{(\sqrt{5})^3 \times 9^2 \times 2^2}{(\sqrt{5})^5 \times 10^2 \times 3^3}$$

$$\frac{3 \times 4}{(\sqrt{5})^2 \times 10^2}$$

$$\frac{3}{5 \times 25} = \frac{3}{125}$$

5. $2^x = 0.0625 = \frac{625}{1000}$

$2x = \frac{1}{16} = 2^{-4}$

$\therefore x = -4$

6. $16x^2 = 8^{4x-3}$

$2^{4x2} = 2^{3(4x-3)}$

$= 4^{x2} = 12x - 9$

$= 4^{x2} – 12x + 9 = 0$

$(2x-3)^2 = 0$

$2x-3 = 0$

$x = 1.5$

No	Log
5.627	0.7503
$(0.234)^3$	T. 3692 x 3
	2.8579
8.237	0.4779 $\frac{0.9158}{2}$
2.399×10^{-3}	3.3800

	$= 0.002399$

7. $9^{x+1} + 3^{2x+1} = 36$

$3^{2x+2} + 3^{2x+1} = 36$

$3^{2x(9+3)} = 36$

$3^{2x} = 3^1$

$2x = 1$

$x = ½$

8. (a) $4p^2 – 3P – 10 = 0$

(b) $4p^2 – 8p + 5p = 0$

$(4p + 5)(p - 2) = 0$

$p_1 = {}^{-5}/_4$, $p = 2$

When $y = {}^{-5}/_4$,

$4^{-y} = \frac{-5}{4}$

$y = \frac{\log_4 (-5)}{2}$

$P = 2$

$4^{-y} = 2$

$2^{-2y} = 2^1$

$y = {}^{-1}/_2$

9. $\frac{1}{16^x} = \frac{1}{32}$

$\left(\frac{1}{2^{4x}}\right)^{x - ¼} = \frac{1}{2^5}$

$2^{-4x^2 + x + x} = 2^{-5}$

$-4x^2 + x + 5 = 0$

$4x^2 – x – 5 = 0$

$4x^2 – 5x + 4x – 5 = 0$

$x(4x – 5) + 1(4x – 5) = 0$

$x = -1$ or $x = \frac{5}{4}$

10. $15 (ax)^4 ({}^2/_{x^2}) = 4860$

$60a^4 = 4860$

$a^4 = 81$

$a = 3$