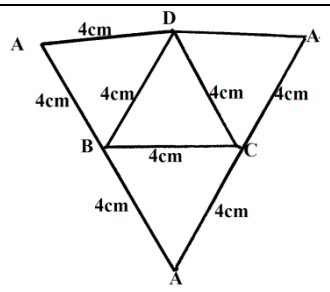
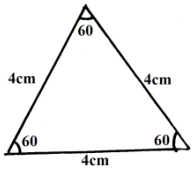
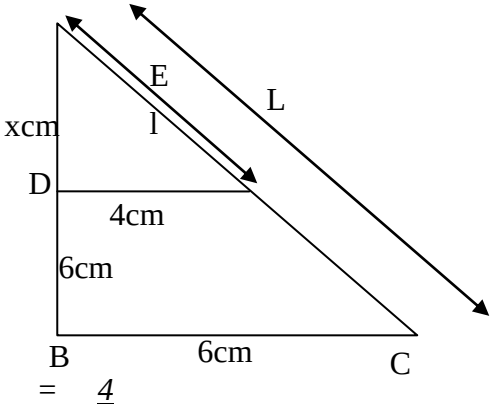
2. *Surface area of solids*

1	(a) $(10+2x)(8+2x)=168$ $80+20x+16x+4x^2=168$ $4x^2+36x-88=0$ $x^2+9x-22=0$ $p=-22$ $s=9$ $-2,11$ $x^2-2x+11x-22=0$ $x(x-2)+11(x-2)=0$ $(x+11)(x-2)=0$ $\therefore x=2$ $2m$ (b) (i) Area of the path $168-80=88m^2$ Area of the path excluding corners $88-4\times 4m^2$ $=88-16$ $=72m^2$ No of slabs $=\frac{72\times 100\times 100}{50\times 50}$ $=288$ (ii) $4\times 600+288\times 50$ $=2400+14400$ $=Ksh.16800$	M_1 M_1 M_1 A_1 M_1 M_1 A_1 M_1 A_1	✓equation ✓quad equation ✓partial fact ✓exp. for area path ✓exp. for area of the slabs excluding corners ✓exp for No. of slabs ✓exp total cost
2.	 S.A = ½ x 4 x 4 sin 60 x 4 = 27.713cm2	B1 M1 A1	

			
		03	

1. *(a)*



$\frac{x}{x+6} = \frac{4}{6}$

$6x = 4x + 24$

$x = 12\ cm$

$L = \sqrt{12^2 + 4^2}$

$= \sqrt{160}$

$= 12.65\ (2\ d.p)$

$L = \sqrt{18^2 + 6^2}$

$\sqrt{360}$

$= 18.97$

$SA = \pi(RL - rL)$

$= 3.142\ (6 \times 18.97 - 4 \times 12.65)$

$= 3.142 \times 63.22 = 198.64\ cm^2$

(b) Cost of material for one lamp shape

$= \frac{198.64}{10000} \times 800$

$= Sh15.90$

Cost of 10 lamp shape $= 2 \times 10 \times 15.90 = sh\ 318$

2. *Area of the remaining cross-section*

$= 4.22 \times \pi$

$= (17.64\pi)cm^2$

Area of the curved surface

$= (8.4\pi \times 150$

$= \frac{1260}{2}\pi\ cm^2$

Area of the flat surface
= (150 x 8.4)cm^2
=1260cm^2
Total area = (1260 + 630 π + 17.64π
= (1260 + 647.64π)cm^2
= 3295cm^2/ 3295.44cm^2

3. *Surface area = 2(0.6 x 2.8)m^2 + 2(0.6 x 3.2)m^2*
= (3.36 + 3.84)m^2
= 7.2m^2

4. *a) Area of hemispherical part*
= ½ X 4 UR^2
= 2 X $^{22}/_7$ x 35 X 35
= 7700cm^2

b) Slant height for original cone
$\frac{L}{L-60} = \frac{35}{14}$
L = 100cm

c) Surface area of frustrum
= URL – url
= $^{22}/_7$ X 35 x 100 – $^{22}/_7$ x 14 X 40
= 11000 – 1760 = 9240 cm^2

d) Area of base
$^{22}/_7$ X 14^2 = 616 cm^2

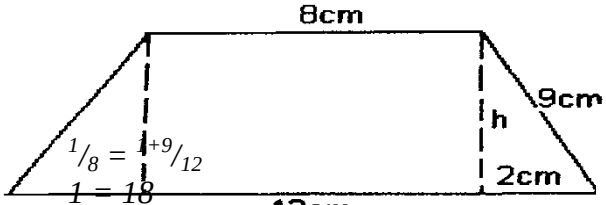
e) Total surface
= 7700 + 9240 + 616 = 17556cm^2

5. *a)TA = 2 X 6.8 X 3.5 + 2 X 4.2 X 3.5m^2*
= 47.6 +29.4 m^2 = 77m^2
b) 77 – ($^{75}/_{100}$ X 2.5 X 2 + $^{400}/_{100}$ X 1.25)m^2
77 – (3.75 + 5) m^2
77 – 68.25 m^2 = 8.75m^2
c)i) Cost of paint A
= 68.25 X 0.8 X 80 = Kshs.43681
ii) Cost of paint B
$\frac{68.25 \times 35}{0.5}$
= Kshs.4777.5
d) No of tins
$= \frac{54.6 \times 1000}{400}$
$= \frac{136.5}{}$ *= 137 tins*
No. of tins
$= \frac{136.5}{1.25}$
= 109.2 = 110 tins

6. *Top surface area = 8x8 =64cm^2*
Bottom surface area = 12x12=144cm^2
Height of slanting faces
H = 9^2 – 2^2 = 8.775cm
Area of slanting face = ½ (12 + 8) x 8.775 x 4
= 351cm^2

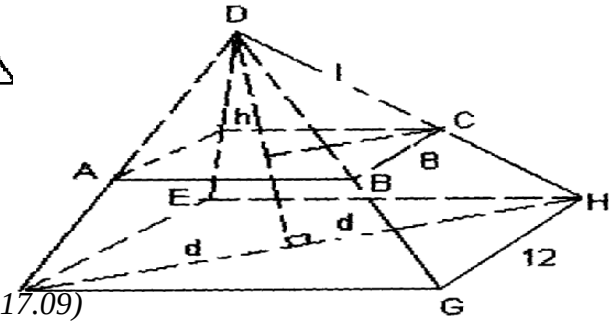
For both
Attempt to solve area for slant face

T.S.A = 64 + 144 + 351 = 559cm^2



$^1/_8$ = $^{1+9}/_{12}$
1 = 18
D= ½$\sqrt{12^2 + 12^2}$ = 8.485

H =$\sqrt{27^2 – 8.485^2}$ = 25.63
$^h/_{25.63}$ = $^8/_{12}$
h=17.09cm
v = ($^1/_3$ x 12 x 12 x 25.63 –($^1/_3$ x 8 x 8 x 17.09)
= 865.7cm^2



(c) Tan θ $^{25.63}/_6$ = 4.272
θ = 76.82^o