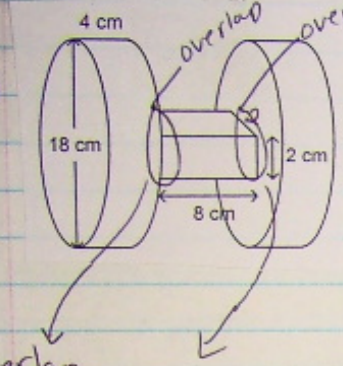
a)



cylinder

$SA = 2\pi r^2 + 2\pi rh$

$= 2(3.14)(9)^2 + 2(3.14)(9)(4)$

$= 2(3.14)(81) + 226.08$

$= 508.68 + 226.08$

$= 734.76$

$\times 2$

1469.52

overlap

$A = L \times w$

$= 2 \times 2$

$= 4_{\times 2}$

$= 8$

$A = L \times w$

$= 2 \times 2$

$= 4_{\times 2}$

$= 8$

Rectangular Prism

Top / Bottom	Front / Back	Side / Side
$A = L \times w$	$A = L \times w$	$A = L \times w$
$= 8 \times 2$	$= 8 \times 2$	$= 2 \times 2$
$= 16_{\times 2}$	$= 16_{\times 2}$	$= 4_{\times 2}$
$= 32$	$= 32$	$= 8$

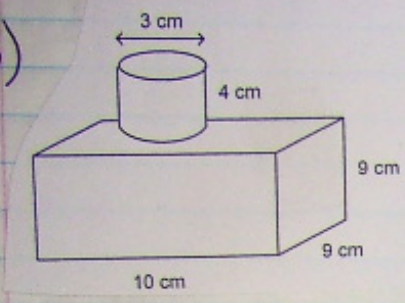
Total Surface Area $= 1469.52 + 72 - \overset{\text{overlap}}{8 - 8}$

$= 1525.52\ cm^2$

$SA = 32 + 32 + 8$

$= 72$

b)



$SA = 2\pi r^2 + 2\pi r h$

$= 2(3.14)(1.5)^2 + 2(3.14)(1.5)(4)$

$= 2(3.14)(2.25) + 37.68$

$= 14.13 + 37.68$

$= 51.81$

Rectangular Prism

Top/Bottom	Front/Back	Side/Side
$A = L \times w$	$A = L \times w$	$A = L \times w$
$= 10 \times 9$	$= 10 \times 9$	$= 9 \times 9$
$= 90$ x2	$= 90$ x2	$= 81$ x2
$= 180$	$= 180$	$= 162$

$SA = 180 + 180 + 162$

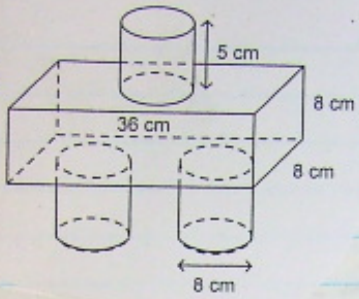
$= 522$

Total Surface Area $= 51.81 + 522 - 14.13$ (overlap)

$= 559.68\ cm^2$

c)

Cylinders are identical



Cylinder

$SA = 2\pi r^2 + 2\pi rh$

$= 2(3.14)(4)^2 + 2(3.14)(4)(5)$

$= 2(3.14)(16) + 125.6$

$= 100.48 + 125.6$

$= 226.08$

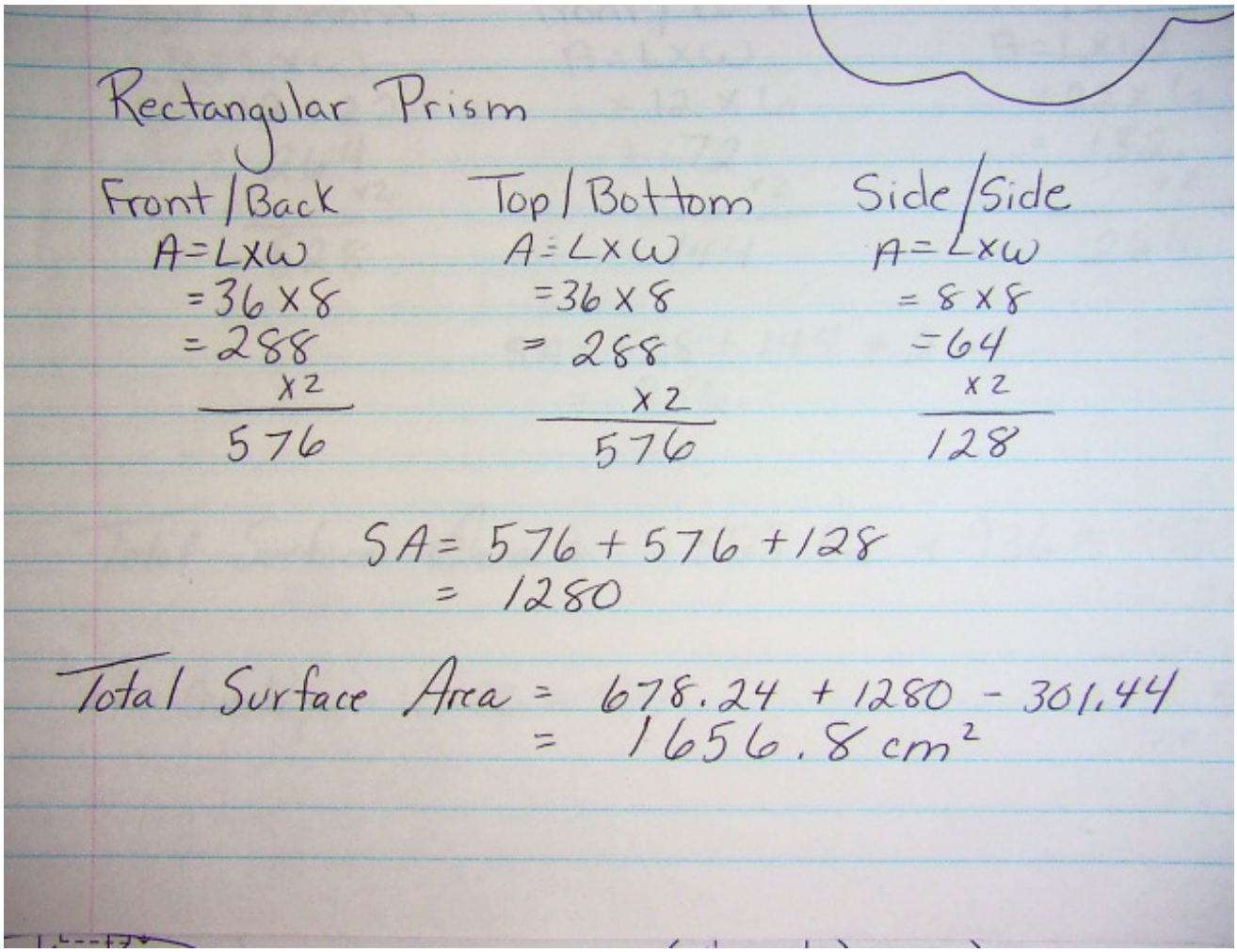
$\times 3$

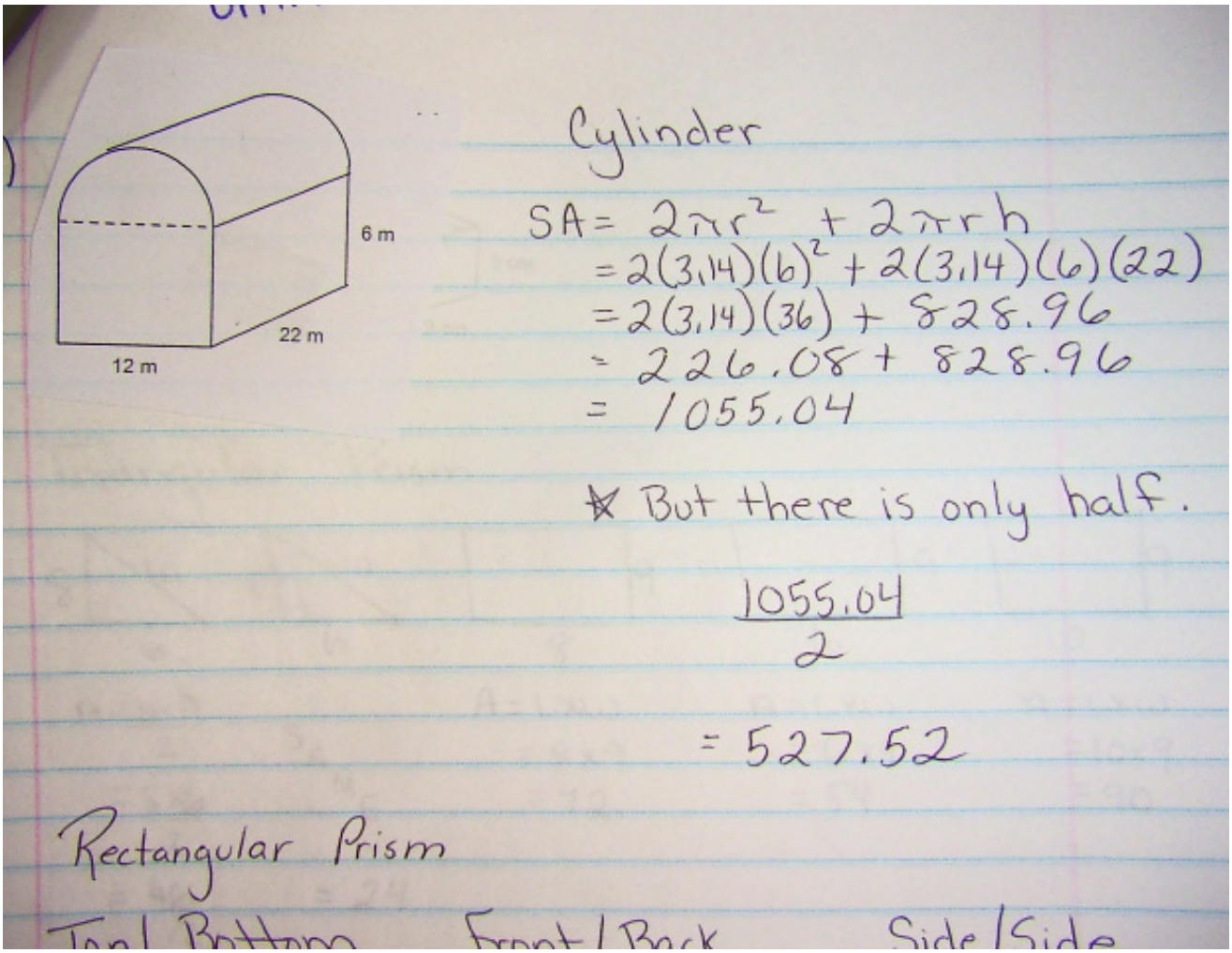
$= 678.24$

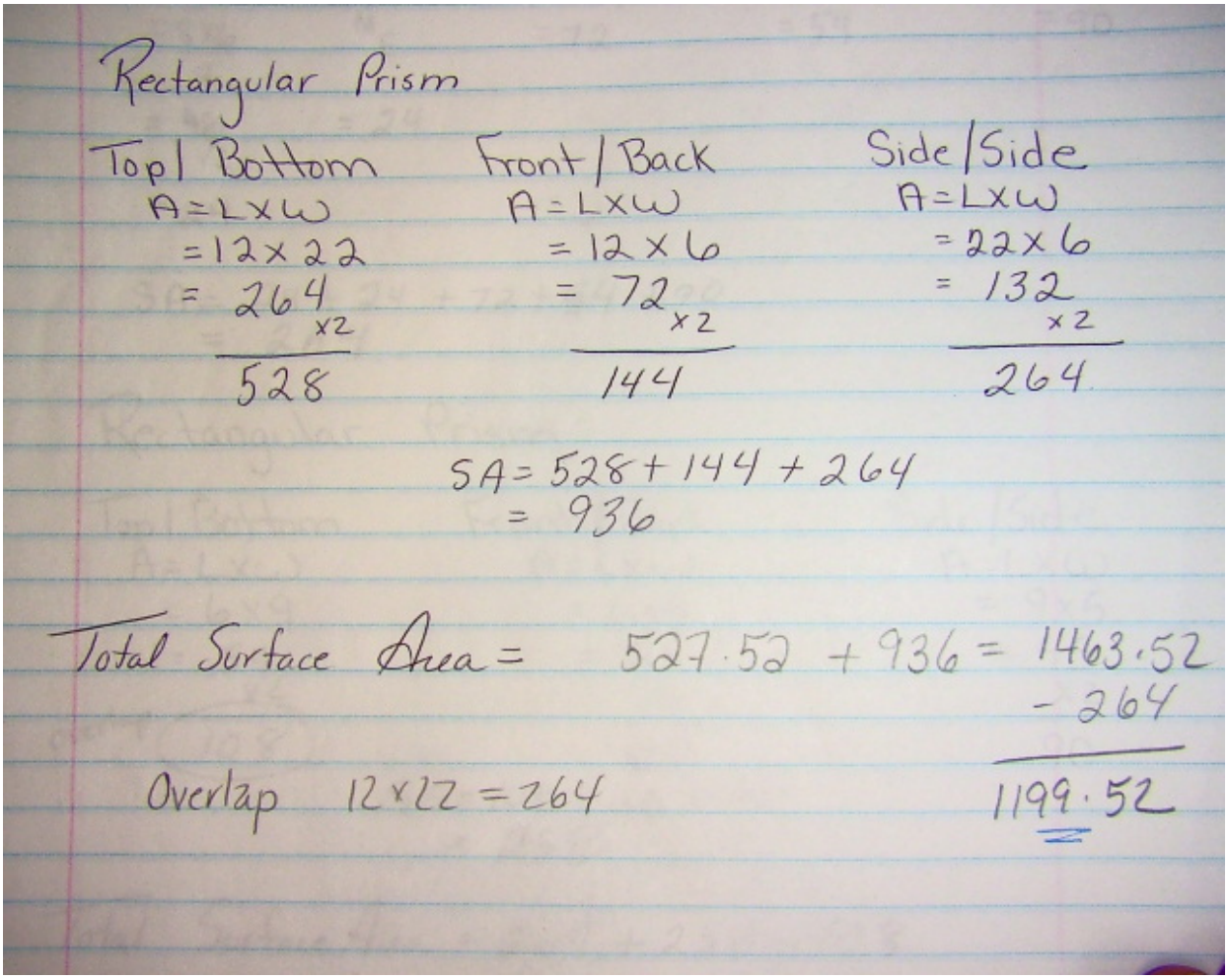
overlap. (3 sections)

100.48×3

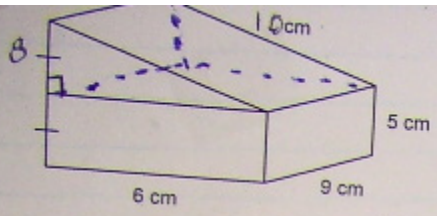
301.44


Rectangular Prism
Front/Back
A=LxW
=36x8
=288
x2
576
Top/Bottom
A=LxW
=36x8
=288
x2
576
Side/Side
A=LxW
=8x8
=64
x2
128
SA= 576+576+128
= 1280
Total Surface Area = 678.24 + 1280 - 301.44
= 1656.8 cm²

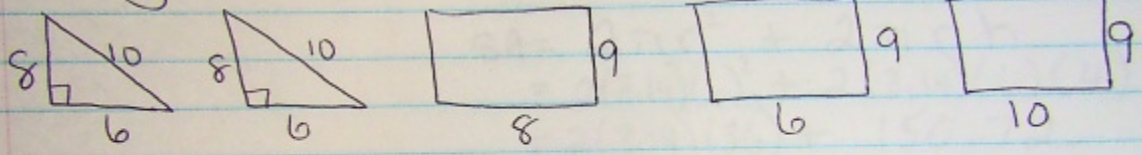

6 m
22 m
12 m
Cylinder
SA = $2\pi r^2 + 2\pi rh$
$= 2(3.14)(6)^2 + 2(3.14)(6)(22)$
$= 2(3.14)(36) + 828.96$
$= 226.08 + 828.96$
$= 1055.04$
* But there is only half.
$\frac{1055.04}{2}$
$= 527.52$
Rectangular Prism
Top/Bottom
Front/Back
Side/Side


Rectangular Prism
Top/ Bottom
A=LxW
=12x22
= 264
x2
528
Front/Back
A=LxW
=12x6
= 72
x2
144
Side/Side
A=LxW
=22x6
= 132
x2
264
SA= 528+144+264
= 936
Total Surface Area = 527.52 + 936 = 1463.52
- 264
1199.52
Overlap 12x22=264

e)



Triangular Prism



$A = \frac{b \times h}{2}$

$= \frac{8 \times 6}{2}$

$= \frac{48}{2}$

$= 24$

$SA = 24 + 24 + 72 + 54 + 90$

$= 264$

SA_{ME}

$A = L \times W$

$= 8 \times 9$

$= 72$

$A = L \times W$

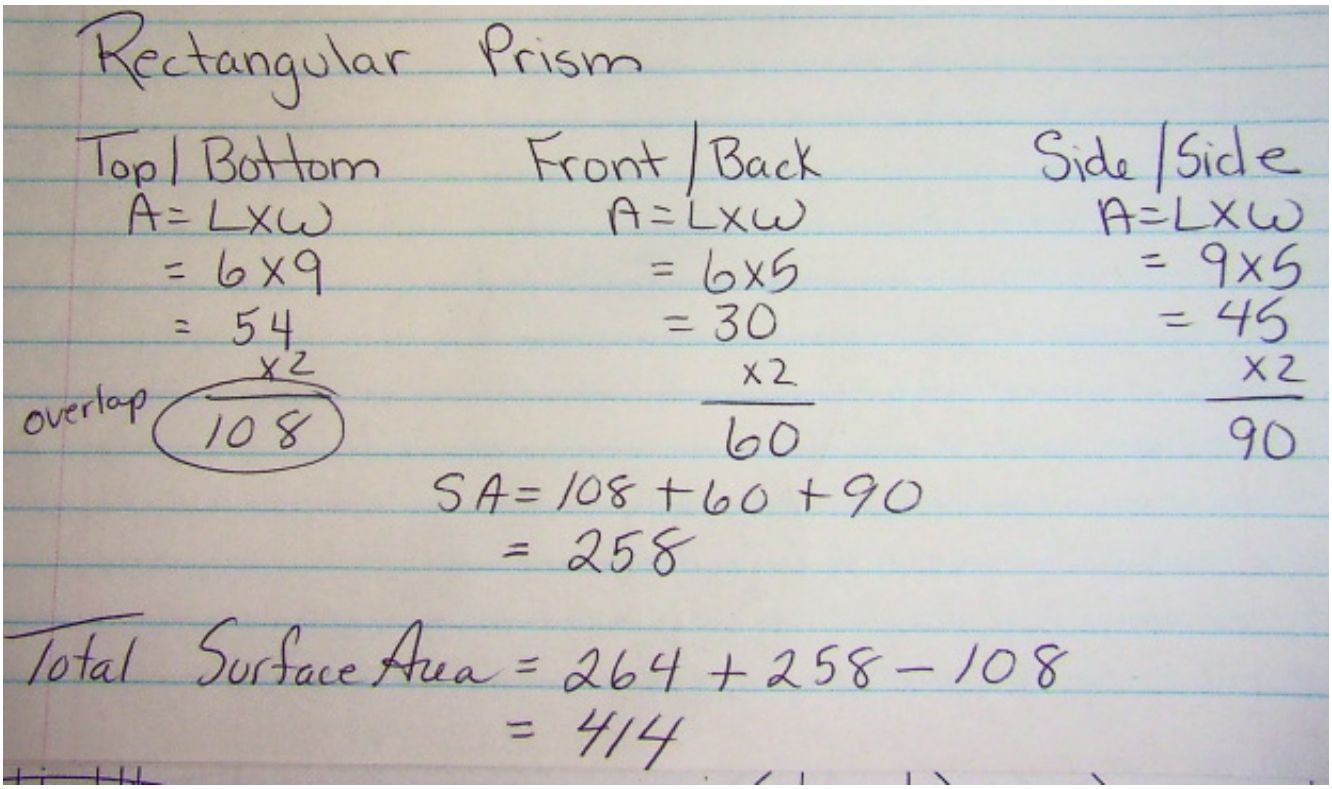
$= 6 \times 9$

$= 54$

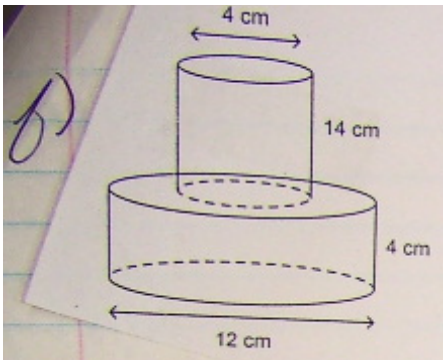
$A = L \times W$

$= 10 \times 9$

$= 90$


Rectangular Prism
Top / Bottom
A = L x w
= 6 x 9
= 54
x2
overlap
108
Front / Back
A = L x w
= 6 x 5
= 30
x2
60
Side / Side
A = L x w
= 9 x 5
= 45
x2
90
SA = 108 + 60 + 90
= 258
Total Surface Area = 264 + 258 − 108
= 414

f)



Top

$SA = 2\pi r^2 + 2\pi rh$

$= 2(3.14)(2)^2 + 2(3.14)(2)(14)$

$= 2(3.14)(4) + 175.84$

$= 25.12 + 175.84$

$= 200.96$

Bottom

$SA = 2\pi r^2 + 2\pi rh$

$= 2(3.14)(6)^2 + 2(3.14)(6)(4)$

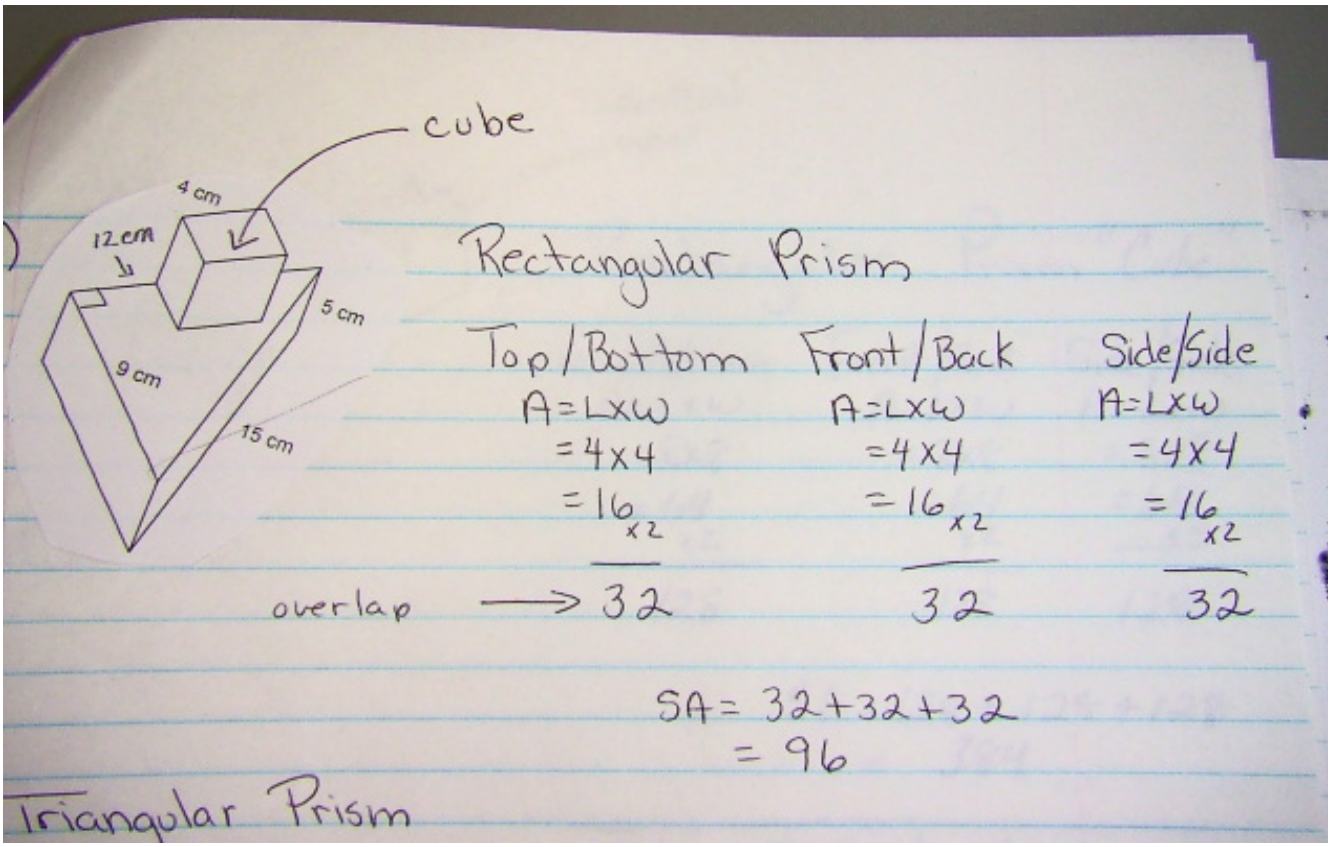
$= 2(3.14)(36) + 150.72$

$= 226.08 + 150.72$

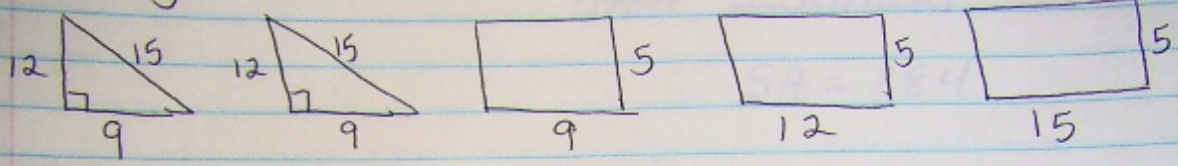
$= 376.8$

Total Surface Area $= 200.96 + 376.8 - 25.12$

$= 552.64\ cm^2$


cube
4 cm
12 cm
5 cm
9 cm
15 cm
Rectangular Prism
Top/Bottom
A=LxW
=4x4
=16 x2
32
Front/Back
A=LxW
=4x4
=16 x2
32
Side/Side
A=LxW
=4x4
=16 x2
32
overlap
SA= 32+32+32
= 96
Triangular Prism

Triangular Prism



$A = \frac{bh}{2}$

$= \frac{12 \times 9}{2}$

$= \frac{108}{2}$

$= 54$

$SA_{ME} = 54$

$A = L \times W$

$= 9 \times 5$

$= 45$

$A = L \times W$

$= 12 \times 5$

$= 60$

$A = L \times W$

$= 15 \times 15$

$= \cancel{225}\ 75$

$SA = 54 + 54 + 45 + 60 + \cancel{225}\ 75$

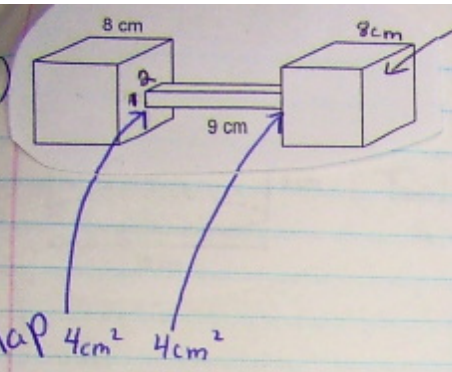
$= \cancel{438}\ 288$

Total Surface Area $= 96 + \overset{288}{\cancel{438}} - 32$

$= \cancel{502\ cm^2}$

$352\ cm^2$

h)



Rectangular Prism "Cube"

Top/Bottom	Front/Back	Side/Side
A = L x w	A = L x w	A = L x w
= 8 x 8	= 8 x 8	= 8 x 8
= 64	= 64	= 64
x2	x2	x2
128	128	128

SA = 128 + 128 + 128
= 384

Other Identical Cube

SA = 384

"Middle rectangular prism"

Top/Bottom	Front/Back	Side/Side
A = L x w	A = L x w	A = L x w
= 2 x 9	= 1 x 9	= 1 x 2

Other Identical Cube

SA = 384

"Middle rectangular prism"

Top / Bottom	Front / Back	Side / Side
A = L x w	A = L x w	A = L x w
= 2 x 9	= 1 x 9	= 1 x 2
= 18	= 9	= 2
x 2	x 2	x 2
36	18	4

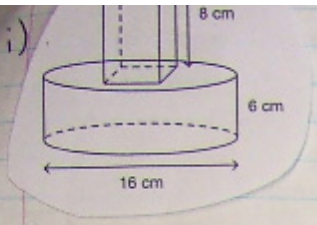
overlap x 2

SA = 36 + 18 + 4
= 58

TSA = 58 + 384 − 4 − 4 + 384

= ~~434~~ 818.

i)



Rectangular Prism

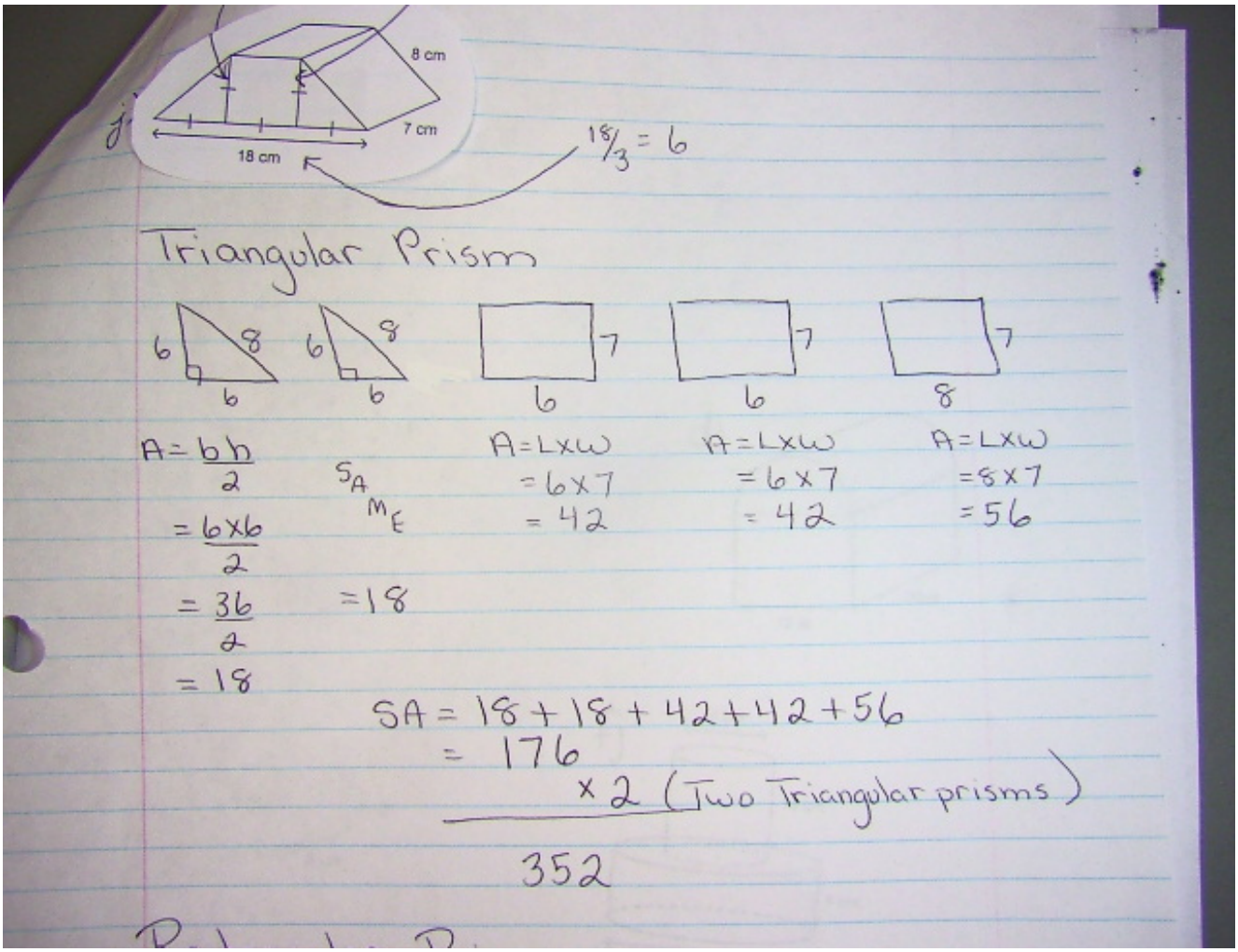
Top/Bottom	Front/Back	Side/Side
A = L x w	A = L x w	A = L x w
= 4 x 4	= 4 x 8	= 8 x 4
= 16	= 32	= 32
x2	x2	x2
(32) overlap.	64	64

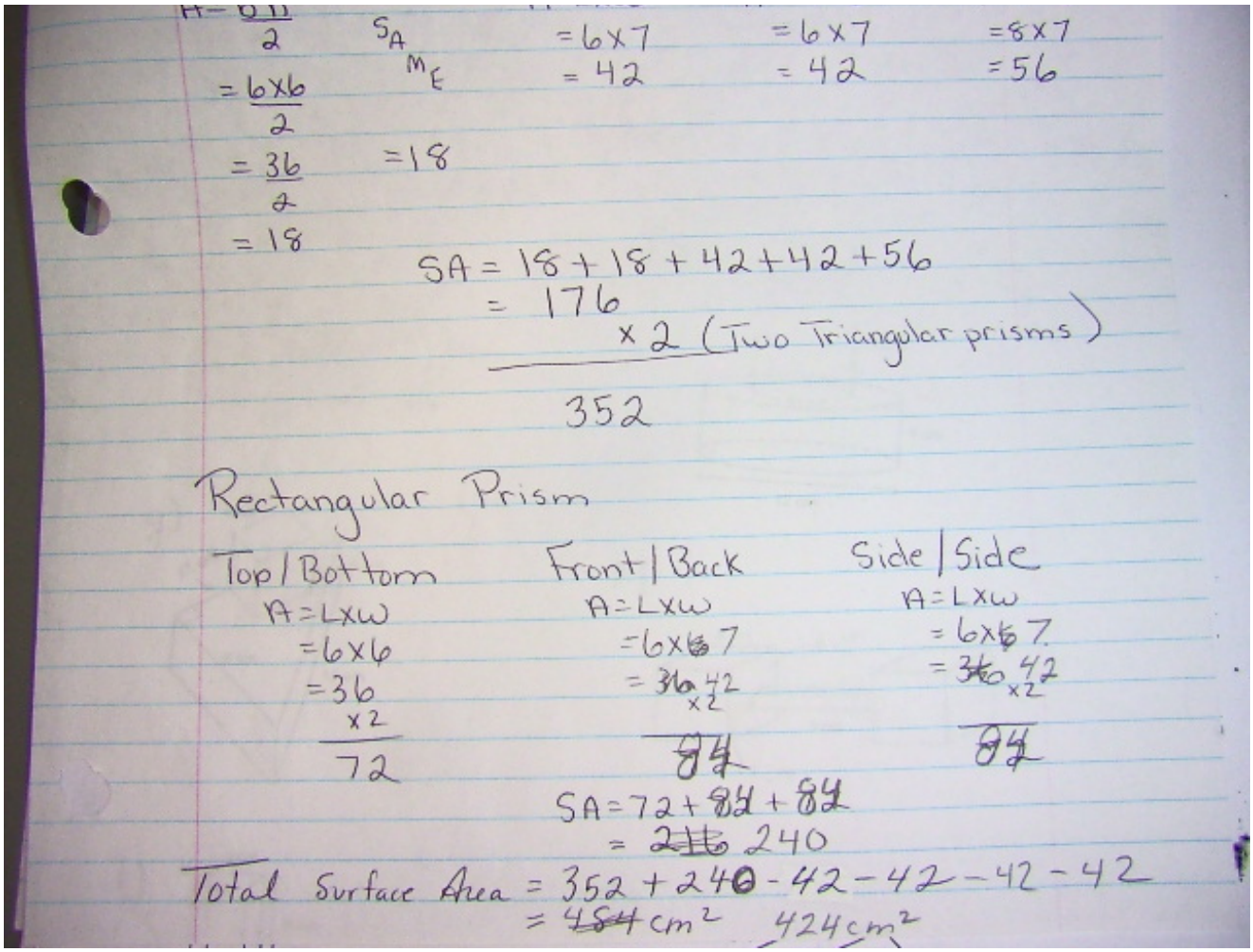
SA = 32 + 64 + 64
= 160

Cylinder

$SA = 2\pi r^2 + 2\pi rh$
$= 2(3.14)(8)^2 + 2(3.14)(8)(6)$
$= 2(3.14)(64) + 301.44$
$= 401.92 + 301.44$
$= 703.36$

$TSA = 160 + 703.36 - 32$
$= 831.36\ cm^2$


8 cm
7 cm
18 cm
18/3 = 6
Triangular Prism
6
8
6
6
8
6
6
7
6
7
6
7
8
7
A = bh/2
= 6x6/2
= 36/2
= 18
SA
ME
=18
A=LxW
=6x7
=42
A=LxW
=6x7
=42
A=LxW
=8x7
=56
SA = 18+18+42+42+56
= 176
x2 (Two Triangular prisms)
352



$A = \frac{bh}{2}$

$= \frac{6 \times 6}{2}$

$= \frac{36}{2}$

$= 18$

SA_{ME}

$= 18$

$= 6 \times 7$

$= 42$

$= 6 \times 7$

$= 42$

$= 8 \times 7$

$= 56$

$SA = 18 + 18 + 42 + 42 + 56$

$= 176$

$\times 2$ (Two Triangular prisms)

352

Rectangular Prism

Top / Bottom

$A = L \times w$

$= 6 \times 6$

$= 36$

$\times 2$

72

Front / Back

$A = L \times w$

$= 6 \times 7$

$= 42$

$\times 2$

84

Side / Side

$A = L \times w$

$= 6 \times 7$

$= 42$

$\times 2$

84

$SA = 72 + 84 + 84$

$= 240$

Total Surface Area $= 352 + 240 - 42 - 42 - 42 - 42$

$= 424 \text{ cm}^2$