Practice Test Solutions

1. A	2. B	3. A
4. A	5. B	6. D
7. C	8. A	9. D
10. B	11. D	12. C
13. D	14. D	15. C

16 points

16. 4 & 5

#4. $\sqrt{\frac{49}{60}} = 0.90\ldots$ $\sqrt{\frac{28}{225}} = 0.3527\ldots$

$\sqrt{\frac{49}{225}} = \frac{7}{15}$ ✓ $\sqrt{\frac{7}{15}} = 0.683\ldots$

$= 0.4\overline{6}$

#7. 3 & 4

$\sqrt{\frac{52}{3}} = 4.16\text{x}$ $\sqrt{\frac{37}{4}} = 3.04$

$\sqrt{\frac{61}{3}} = 4.51\text{x}$ $\sqrt{\frac{79}{4}} = 4.44\text{x}$

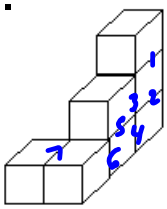
#8. $\sqrt{\frac{5}{11}} = \sqrt{0.\overline{45}}$

$= 0.\overline{45} \wedge 0.5$

$= 0.674$

#9. $A = 27.8\text{cm}^2$ $\sqrt{27.8} = 5.3\text{cm}$

10.



7 blocks x 6 sides/block = 42 sides

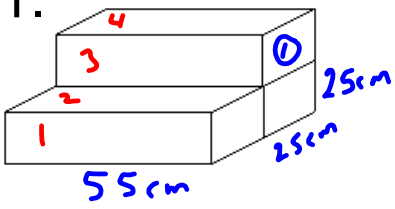
overlap 14 sides

28 sides

Area of 1 side = 1x1 = 1cm^2

$A_{shape} = 28 \times 1 = 28$

11.

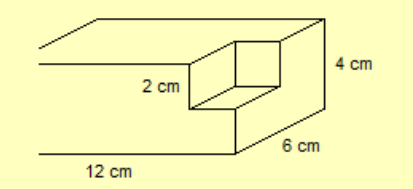


① $A_{ends} = 25 \times 25 \times 6$
$= 3750 cm^2$

$A_{lengths} = 55 \times 25 \times 8$ ← # of lengths
$= 11000 cm^2$

$A_{total} = 3750 + 11000$
$= 14750 cm^2$

12.



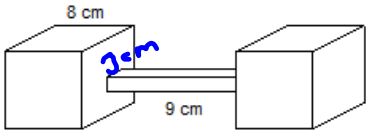
$A_{top/bottom} = 12 \times 6 \times 2$
$= 144 cm^2$

$A_{front/back} = 12 \times 4 \times 2$
$= 96 cm^2$

$A_{sides} = 6 \times 4 \times 2$
$= 48 cm^2$

$A_{total} = 144 + 96 + 48$
$= 288 cm^2$

13.



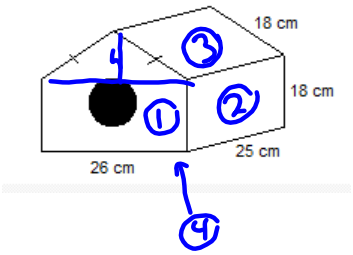
$A_{boxes} = 8 \times 8 \times 12$
$= 768 cm^2$

$A_{joiner} = 9 \times 3 \times 4$
$= 108 cm^2$

$Overlap = 3 \times 3 \times 2$
$= 18$

$A_{total} = 768 + 108 - 18$
$= 858 cm^2$

14.



$a^2 = c^2 - b^2$
$h^2 = 18^2 - 13^2$
$= 324 - 169$
$= 155$
$h = \sqrt{155}$
$= 12.4$

$A_{triangle} = \frac{26(12.4)}{2} \times 2$
$= 322.4 cm^2$

① $A_{f/b} = 26 \times 18 \times 2$
$= 936$

② $A_{sides} = 25 \times 18 \times 2$
$= 900 cm^2$

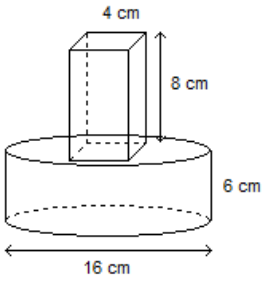
③ $A_{roof} = 18 \times 25 \times 2$
$= 900 m^2$

④ $A_{bottom} = 26 \times 25$
$= 650 m^2$

$hole = \pi r^2$
$= \pi (4)^2$
$= 16\pi$

$A_{total} = 322.4 + 936 + 900 + 900 + 650 - 16\pi$
$= 3708.4 - 16\pi$
$= 3658.1 m^2$

15.



Box

$A_{sides} = 8 \times 4 \times 4$
$= 128 cm^2$

$A_{end} = 4 \times 4$
$= 16 cm^2$

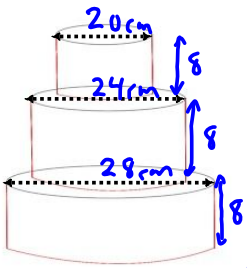
$A_{cylinder} = 2\pi r^2 + 2\pi rh$
$= 2\pi(8)^2 + 2\pi(8)(6)$
$= 128\pi + 96\pi$
$= 224\pi$

$overlap = 4 \times 4$
$= 16 cm^2$

$A_{total} = 128 + 16 + 224\pi - 16$
$= 831.7 cm^2$

17. Cake 5 points

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



Top
$A = \pi r^2 + 2\pi rh$
$= \pi(10)^2 + 2\pi(10)(8)$
$= 100\pi + 160\pi$
$= 260\pi$

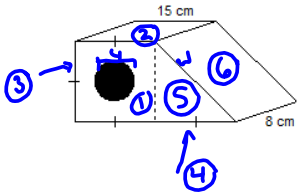
Middle
$A = \pi r^2 + 2\pi rh$
$= \pi(12)^2 + 2\pi(12)(8)$
$= 144\pi + 192\pi$
$= 336\pi$

Bottom
$A = \pi r^2 + 2\pi rh$
$= \pi(14)^2 + 2\pi(14)(8)$
$= 196\pi + 224\pi$
$= 420\pi$

$overlap = small\ circle + med$
$= 100\pi + 144\pi$
$= 244\pi$

$A_{total} = 260\pi + 336\pi + 420\pi - 244\pi$
$= 772\pi$
$= 2425.3 cm^2$

18. 9 points



① $A_{front/back} = 15 \times 15 \times 2 = 450\,cm^2$

② $A_{top/bottom} = 15 \times 8 \times 2 = 240\,cm^2$

③ $A_{end} = 8 \times 15 = 120\,cm^2$

④ $A_{bottom\ front} = 15 \times 8 = 120\,cm^2$

⑤ $A_{triangles} = \frac{15 \times 15}{2} \times 2 = 225\,cm^2$

⑥ is a triangle with legs 15 and 15:

$w^2 = 15^2 + 15^2$
$= 225 + 225$
$= 450$
$w = \sqrt{450}$
$= 21.2$

$A_{slant} = 21.2 \times 8 = 169.6\,cm^2$

$A_{cylinder} = 2\pi r^2 + 2\pi rh$
$= 2\pi rh$
$= 2\pi(2)(8)$
$= 32\pi$

$A_{overlap} = 2\pi r^2$
$= 2\pi(2)^2$
$= 8\pi$

$A_{total} = 450 + 240 + 120 + 120 + 225 + 169.6 + 32\pi - 8\pi$
$= 1324.6 + 24\pi$
$= 1400\,cm^2$

19. 4 points

Determine the value of $\sqrt{\dfrac{\sqrt{81}+\sqrt{49}}{\sqrt{196}-\sqrt{100}}}$.

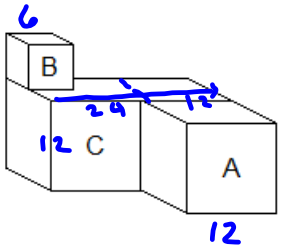
$= \sqrt{\dfrac{9+7}{14-10}}$

$= \sqrt{\dfrac{16}{4}}$

$= \sqrt{4}$

$= 2$

20. 4 points



$A(3\ \text{Blocks}) = (12 \times 12) \times 18$ (# sides)
Large
$= 2592\ cm^2$

$A_{\text{small block}} = (6 \times 6) \times 6$
$= 216\ cm^2$

$\text{Overlap} = (6 \times 6) \times 2 + 12 \times 12 \times 4$
$= 72 + 576$
$= 648$

$A_{\text{total}} = 2592 + 216 - 648$
$= 2160\ cm^2$