Name: Key

Date:

Unit 7 Practice Assessment

Directions: Solve each of the following problems. Be sure to show ALL of your work.

1. Ella measured a neighborhood park and made a scale drawing. She used the scale 1 inch = 15 yards. In the drawing, a soccer field in the park is 7.5 inches wide and 12 inches long. What is the width and length of the actual field?
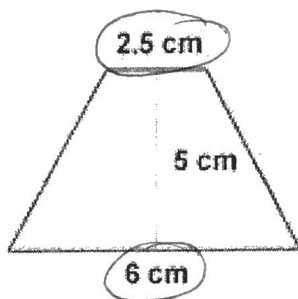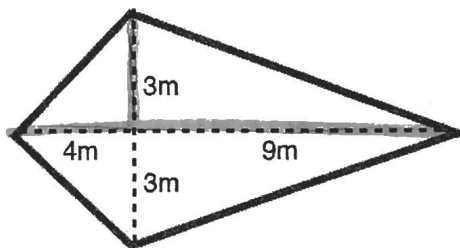
Scale factor = 1 in = 15 yds

drawing

width: 7.5 in × 15 = 112.5 yds

height: 12 in × 15 = 180 yards

2. Find the Area of the figures

2.5 cm

5 cm

6 cm

$\dfrac{2.5+6}{2} \times 5 = \boxed{21.25 cm^2}$

3m

4m   9m

3m

= 9+4 = $\boxed{13}$

13 × 3 = $\boxed{39 m^2}$

3. Find the **area** of the following composite figure.

rectangle

~~square~~

$A = \pi r^2$

$= 3.14 (7)(7)$

$= \dfrac{153.86}{2}$

semi-circle

$\boxed{76.93 mm^2}$

10 × 14 = $\boxed{140 mm^2}$

140 + 76.93

$\boxed{216.93 mm^2}$

14 mm

7

10 mm   10 mm

14 mm
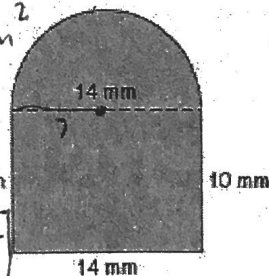
4. Find the area of the following composite figure.

$\triangle = \frac{1}{2}bh = \frac{1}{2}(8)(7)$

$= \boxed{28 ft^2}$

$\smile = \frac{\pi r^2}{2} \quad \frac{(3.14)(\cancel{8}4)(4)}{2}$

$\boxed{25.12 ft}$

$d = 8$
$r = 4$

$\begin{array}{r} 28 \\ + 25.12 \\ \hline 53.12 ft^2 \end{array}$

total Area

7 ft

8 ft

5. Determine the area and circumference of the following circle.

$r = 4.5$
$d = 9$
$A = \pi r^2 = (3.14)(4.5)(4.5)$ Area $\boxed{63.59 in^2}$
$C = d \pi = (9)(3.14) = \boxed{28.26 in}$ Circumference

4.5 in.

6. Determine the area and circumference of the following circle.

$r = 9$
$d = 18$
$A = \pi r^2 = (3.14)(9)(9) = \boxed{254.34 in^2}$ $\boxed{254.34 in^2}$ Area
$C = d \pi = (18)(3.14) = \boxed{56.52 in}$ Circumference

18 in

7. Find the surface area of the triangular prism..

Front & Back $= \frac{1}{2}(3)(4) = 6 in \times 2 = \boxed{12 in^2}$
Bottom $= 4 \times 8 = \boxed{32 in^2}$
SIDES: $3 \times 8 = \boxed{24 in^2}$
$8 \times 5 = \boxed{40 in^2}$

Total:
$12 + 32 + 24 + 40$
$= \boxed{108 in^2}$
Total!

5 in

3 in

8 in

4 in

8. Find the **surface area** of the rectangular prism.

Front & Back: $11 \times 6 = 66 \times 2 = \boxed{132 \text{ cm}^2}$

Bottom & Top = $5 \times 11 = 55 \times 2 = \boxed{110 \text{ cm}^2}$

Sides = $6 \times 5 = 30 \times 2 \boxed{60 \text{ cm}^2}$

$132 + 110 + 60 = \boxed{302 \text{ cm}^2}$

← total surface area

11

6 cm

5 cm

11 cm
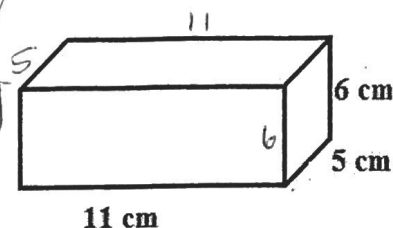
9. Determine the (volume) of the rectangular prism below.

$V = Bh$

5×2

$= 10$

$= (10)(10)$

$\boxed{100 \text{ cm}^3}$

10

2 cm

10 cm

5 cm
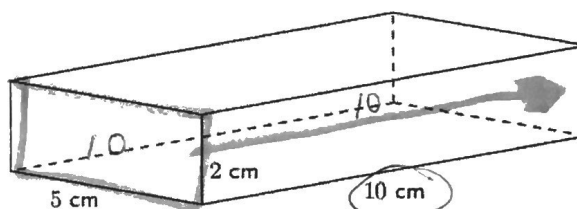
10. Find the volume of composite 3-dimensional figure.
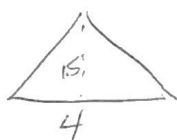
$V = Bh$
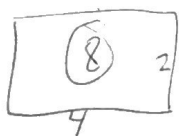
$\frac{1}{2}(4)(1.5)$

$3 \times 2.5 = \boxed{7.5 \text{ yds}^3}$

15

4

$V = Bh$

$(8)(2.5)$

$= \boxed{20 \text{ yd}^3}$

8

2

4

Total: $7.5 + 20 = \boxed{27.5 \text{ yd}^3}$

2.5 yd

1.5 yd

2 yd

2.5 yd

4 yd
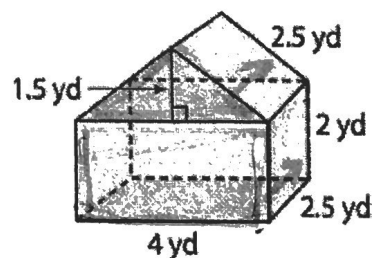
Practice with Geometry!

Show all work for credit.

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1. Find the area.

12 5 6
14
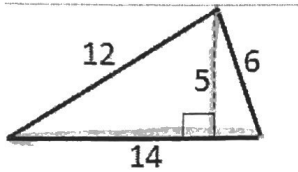
$\frac{1}{2}(14)(5) = \boxed{35 \text{ units}^2}$

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2. Find the area.

10
5 4 5
3
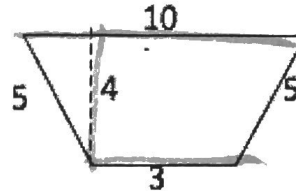
$\frac{3+10}{2} \times 4 = \boxed{26 \text{ units}^2}$

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3. Write an **algebraic equation** that can be used to find the height of a trapezoid that covers 100 square inches.
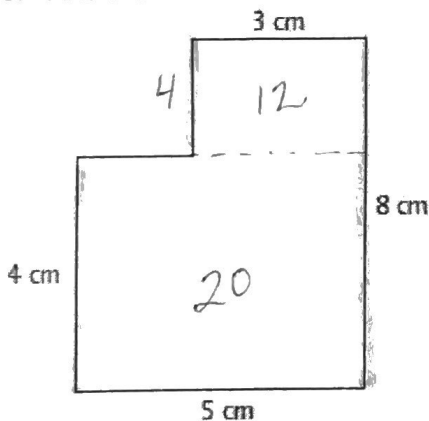
9 in
?
19 in
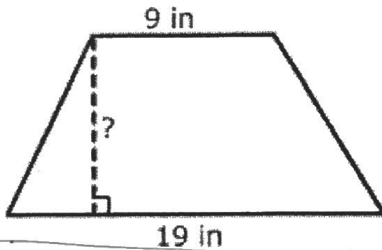
$\frac{9+19}{2} \times ? = 100$

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4. Write an **algebraic equation** that can be used to find the height of a rectangle with an area of 128 cm^2 and a base of 16 cm.
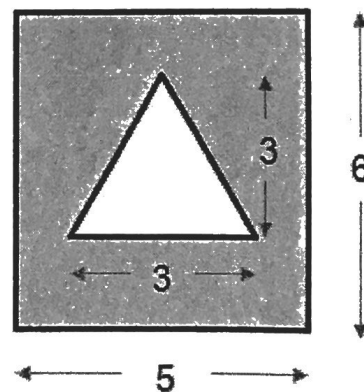
$16x = 128$

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5. Find the total area.

3 cm
4 12
8 cm
4 cm 20
5 cm

$20 + 12 = \boxed{32 \text{ cm}^2}$

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6. Find the area of the **shaded** region.

3
3
6
5

Shaded

$\triangle = \frac{1}{2}(3)(3) = 4.5$

$\square = 6 \times 5 = 30$

$30 - 4.5 = \boxed{25.5 \text{ units}^2}$

unshaded   shaded

total

7. Find the volume

$\frac{12}{7}$ cm

3 cm

$\frac{14}{3}$ cm
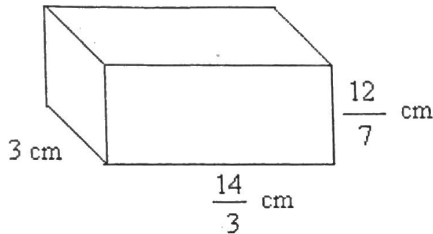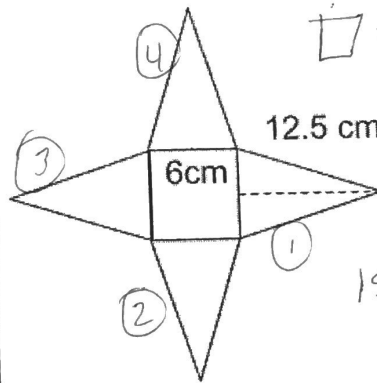
$\frac{3}{1} \times \frac{14}{3} \times \frac{12}{7} = \frac{504}{21} = \boxed{24 cm^3}$

8. Find the total surface area of square pyramid

$\square = 6 \times 6 = 36$

12.5 cm $\triangle = \frac{1}{2}(6)(12.5) = 37.5$
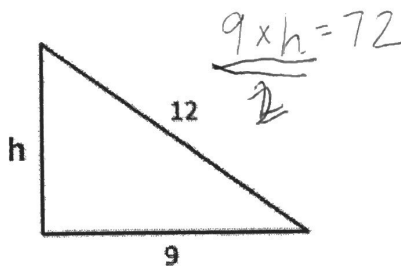
6cm $\times 4$

                                $\overline{150}$

$150 + 36 = $
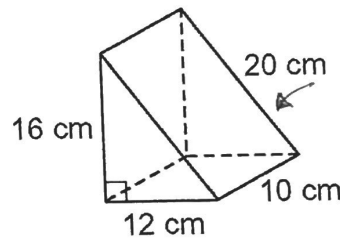
$\boxed{186 cm^2}$

9. Write an algebraic equation that can be used to find the height, if the area of the triangle below is 72 square feet. Then solve.

$\frac{9 \times h}{2} = 72$

12

h

9

10. Find the total surface area

FRONT: $\frac{1}{2}(12)(16)$

BACK $= 96 \times 2 \boxed{192}$

20 cm

16 cm   BOTTOM: $12 \times 10 = \boxed{120}$

SIDE $= 16 \times 10 = \boxed{160}$

10 cm $10 \times 20 = \boxed{200}$

12 cm

$200 + 160 + 120 + 192 =$

total $= \boxed{672 cm^2}$

11. Find the area.

22 in

5 in

9 in
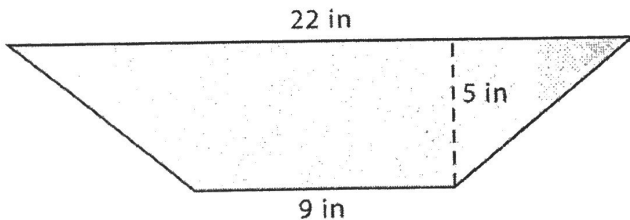
$\frac{9 + 22}{2} \times 5 = \boxed{77.5 in^2}$

12. Find the total area.
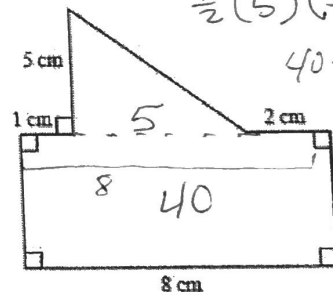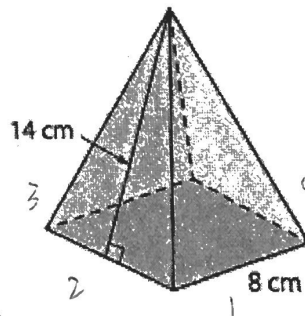
$8 \times 5 = 40$

$\frac{1}{2}(5)(5) = 12.5$

$40 + 12.5$

5 cm

1 cm   5   2 cm $\boxed{52.5 cm^2}$

8   40   5 cm

8 cm

13. Find the volume of the rectangular prism.

$1\frac{1}{2}$ ft

$2\frac{1}{2}$ ft

$3\frac{1}{2}$ ft
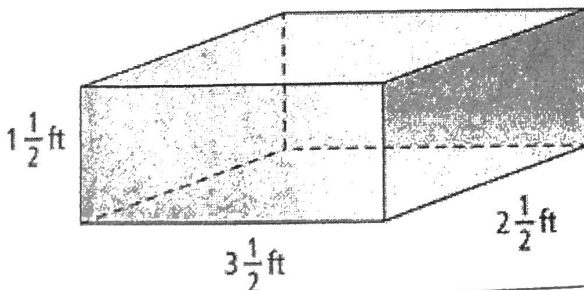
$1.5 \times 3.5 \times 2.5 \boxed{= 13.125 ft^3}$

14. Find the surface area.

bottom $= 8 \times 8 = 64 cm^2$

Sides $= \frac{1}{2}(8)(14) = 56 cm^2$

14 cm $\times 4$

3                              $\overline{224 cm^2}$

4

2

8 cm