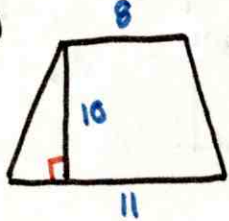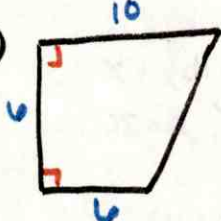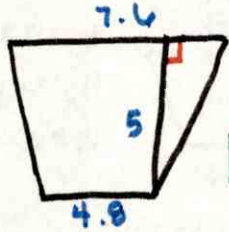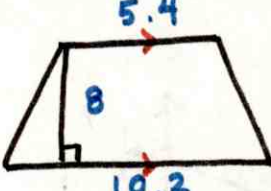Find the area of the trapezoid.

3)

$A = \dfrac{10(8+11)}{2}$

$A = 95 u^2$

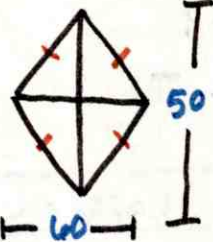$b_1 = 8 \quad h = 10 \quad b_2 = 11$

4)

10

$A = \dfrac{6(10+6)}{2}$

$A = 48u^2$

$b_1 = 10 \quad h = 6 \quad b_2 = 6$

5)

7.6

$A = \dfrac{5(7.6+4.8)}{2}$

$A = 31u^2$

$b_1 = 7.6 \quad h = 5 \quad b_2 = 4.8$

6) The lengths of the bases of a trapezoid are 5.4 cm and 10.2 cm. The height is 8 cm. Draw and label a trapezoid that matches. Then find the area.
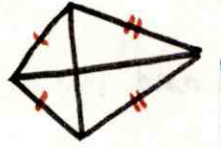

$b_1 = 5.4$
$b_2 = 10.2$
$h = 8$

$A = \dfrac{8(5.4 + 10.2)}{2}$
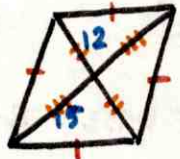
$A = 62.4 \ cm^2$

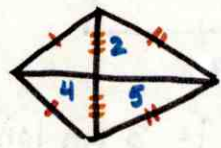Find the area of the rhombus or kite. $\rightarrow A = \frac{1}{2}(d_1 \cdot d_2)$

7)

Rhombus

$A = \dfrac{60(50)}{2}$

$A = 1500 u^2$

$d_1 = 60 \quad d_2 = 50$

8)

Rhombus

$A = \dfrac{48(16)}{2}$

$A = 384 u^2$
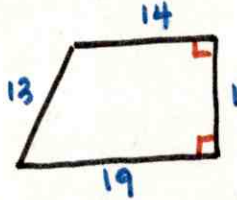
$d_1 = 48 \quad d_2 = 16$

9)

Kite

$A = \dfrac{21(18)}{2}$
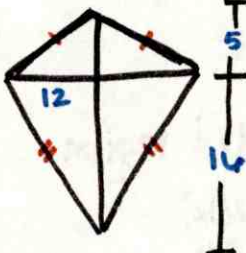
$A = 189 u^2$

$d_1 = 21 \quad d_2 = 18$

10)

Kite

$A = \dfrac{19(10)}{2}$

$A = 95 u^2$

$d_1 = 19 \quad d_2 = 10$

11)

Rhombus

$A = \dfrac{24(30)}{2}$

$A = 360 u^2$

$d_1 = 2(12) \quad d_2 = 2(15)$
$= 24 \qquad = 30$

12)

Kite

$A = \dfrac{9(4)}{2}$

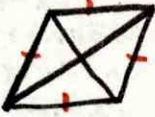$A = 18 u^2$

$d_1 = 4 + 5 \quad d_2 = 2(2)$
$d_1 = 9 \quad d_2 = 4$

Describe and correct the error.

13)

$A = \frac{1}{2}(13)(14+19)$

$= 214.5 cm^2$ ✗

$A = \frac{1}{2}(12)(14+19)$

$A = 198 cm^2$

$b_1 = 14 \quad h = 12$
$b_2 = 19$

14)

$A = \frac{1}{2}(12)(21)$

$= 126 \ cm^2$ ✗

$A = \frac{1}{2}(24)(21)$

$= 252 \ cm^2$

$d_1 = 21 \quad d_2 = 2(12)$
$\qquad = 24$

15) one diagonal of a rhombus is 3 times as long as the other diagonal. The area is 24 ft². what are the lengths of the diagonals.

Ⓐ 8ft, 11ft   Ⓑ 4ft, 12ft
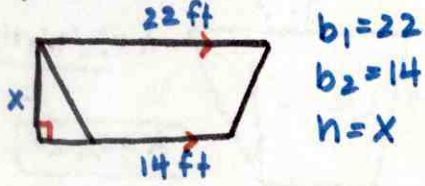Ⓒ 2ft, 6ft   Ⓓ 6ft, 24ft

$A = \dfrac{d_1(d_2)}{2}$

$d_1 = x \quad d_2 = 3x$

$24 = \dfrac{x(3x)}{2}$

$48 = 3x^2$

$16 = x^2$
$x = 4$

$d_1 = 4 \quad d_2 = 3(4)$
$\qquad = 12$

Find the value of x.

16) $A = 108 \text{ ft}^2$

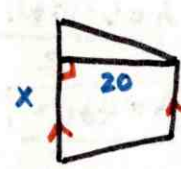
$b_1 = 22$
$b_2 = 14$
$h = x$

$108 = \dfrac{x(22+14)}{2}$

$216 = 36x$

$\boxed{x = 6 \text{ ft}}$
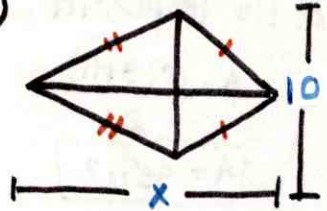
17) $A = 300 \text{ m}^2$

$b_1 = 10$
$b_2 = x$
$h = 20$

$300 = \dfrac{20(10+x)}{2}$

$600 = 20(10+x)$

$30 = 10 + x$
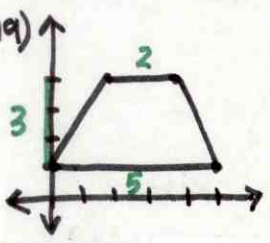
$\boxed{x = 20 \text{ m}}$

18) $A = 100 \text{ yd}^2$

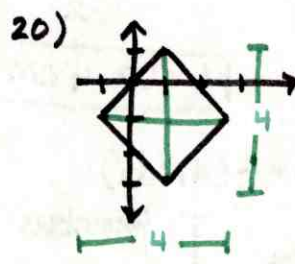$d_1 = 10$
$d_2 = x$

$100 = \dfrac{10x}{2}$
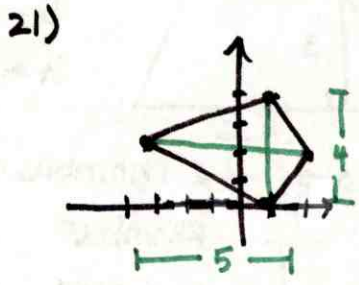
$100 = 5x$

$\boxed{x = 20 \text{ yd}}$

Find the area.

19)

$A = \dfrac{3(2+5)}{2}$

$\boxed{A = 10.5 u^2}$
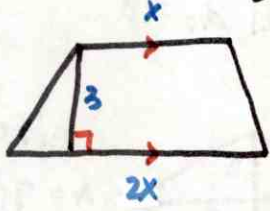
20)

$A = \dfrac{4(4)}{2}$

$\boxed{A = 8u^2}$

21)

$A = \dfrac{5(4)}{2}$

$\boxed{A = 10u^2}$

Find the lengths of the bases of the trapezoids described.

22) The height is 3 ft. One base is twice as long as the other base. The area is 13.5 sq ft.

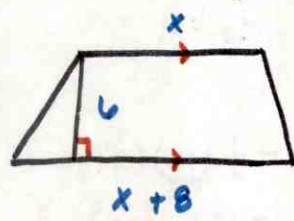$A = 13.5 \text{ ft}^2$

$13.5 = \dfrac{3(x+2x)}{2}$

$27 = 3(3x)$

$9 = 3x$

$x = 3$

$\boxed{base_1 = 3 \qquad base_2 = 6}$

$3(2)$

23) One base is 8 cm longer than the other base. The height is 6 cm and the area is 54 sq cm.

$A = 54 \text{ cm}^2$

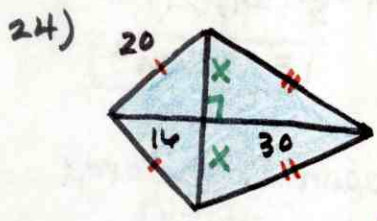$54 = \dfrac{6(x + x + 8)}{2}$

$108 = 6(2x + 8)$

$18 = 2x + 8$

$10 = 2x$

$x = 5$

$\boxed{base_1 = 5 \qquad base_2 = 13}$
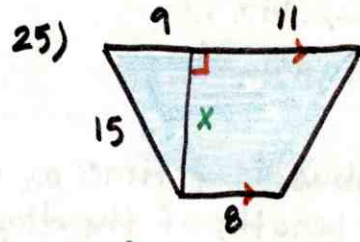
$8 + 5$

Find the area of the shaded region.

24)

$d_1 = 2(12)$
$\quad = 24$

$d_2 = 16 + 30$
$d_2 = 46$

$A = \dfrac{24(46)}{2}$

$\boxed{A = 552 u^2}$

$20^2 = x^2 + 16^2$
$400 = x^2 + 256$
$x^2 = 144$
$x = 12$

25)
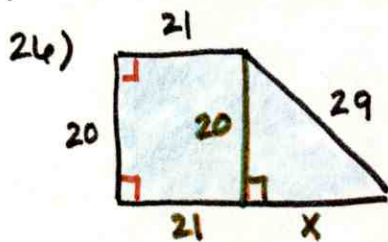

$b_1 = 9 + 11$
$b_1 = 20$

$b_2 = 8$

$h = 12$

$A = \dfrac{12(20+8)}{2}$

$\boxed{A = 168 u^2}$

$15^2 = x^2 + 9^2$
$225 = x^2 + 81$
$x^2 = 144$
$x = 12$

26)

$b_1 = 21$
$b_2 = 21 + 21$
$b_2 = 42$
$h = 20$

$29^2 = x^2 + 20^2$
$841 = x^2 + 400$
$441 = x^2$
$x = 21$

$A = \dfrac{20(21 + 42)}{2}$

$\boxed{A = 630 u^2}$

27)
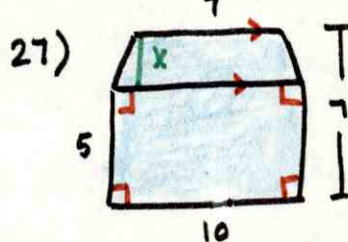
$b_1 = 7$
$b_2 = 10$
$h = 2$

$A = \dfrac{2(7 + 10)}{2}$
$= 17$

$b = 10, h = 5$

$A = 10(5)$
$= 50$

$x = 7 - 5$
$x = 2$

A(Trap) + A(Rect.)

$17 + 50$

$\boxed{A = 67 u^2}$

28)
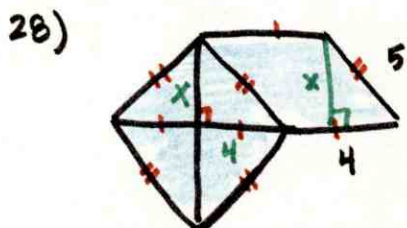
$5^2 = x^2 + 4^2$
$25 = x^2 + 16$
$x^2 = 9$
$x = 3$

$d_1 = 2(4)$
$d_1 = 8$
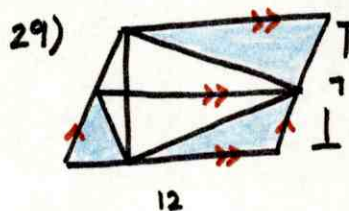$d_2 = 2(3)$
$d_2 = 6$

$A = \dfrac{8(6)}{2}$
$= 24$

$b = 4, h = 3$

$A = 4(3)$
$= 12$

A(Rhombus) + A($\square$)

$24 + 12$

$\boxed{A = 36 u^2}$

29)

$b = 12, h = 7$

$A = 12(7)$
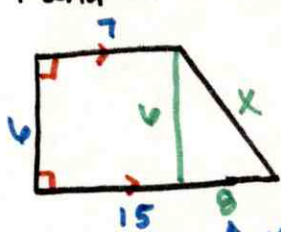$= 84$

$d_1 = 12$
$d_2 = 7$

$A = \dfrac{12(7)}{2}$
$= 42$

A($\square$) − A(Kite)

$84 - 42$

$\boxed{A = 42 u^2}$

sketch the figure. Then determine its perimeter and area.

31) The figure is a trapezoid. It has two right angles. The lengths of its bases are 7 and 15. Its height is 6.
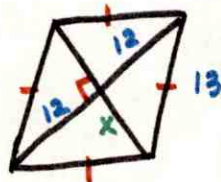

$A = \dfrac{6(7 + 15)}{2}$

$\boxed{A = 66 u^2}$

$x^2 = 6^2 + 8^2$

$x = 10$

$P = 6 + 7 + 10 + 15$

$\boxed{P = 38 u}$

32) The figure is a rhombus. Its side length is 13. The length of one of its diagonals is 24.

$13^2 = 12^2 + x^2$
$169 = 144 + x^2$
$x^2 = 25$
$x = 5$

$d_1 = 24$
$d_2 = 2(5)$
$d_2 = 10$

$A = \dfrac{24(10)}{2}$

$\boxed{A = 120 u^2}$

$P = 4(13)$

$\boxed{P = 52 u}$