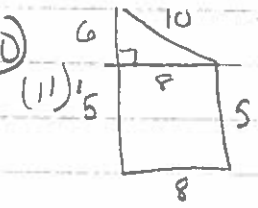
11.3

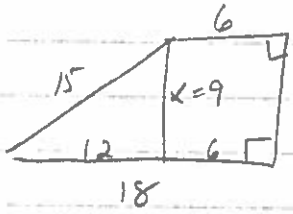
(10) 

$8^2 + x^2 = 10^2$

$x = 6$

$A = \frac{1}{2}(8)(5+11)$

$A = 64$

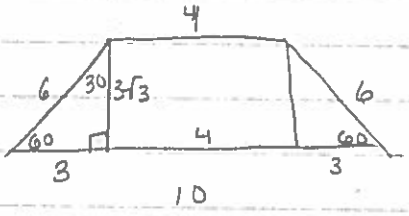
(11) 

$12^2 + x^2 = 15^2$

$x = 9$

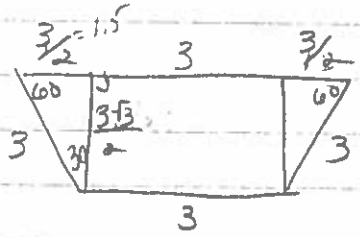
$A = \frac{1}{2}(9)(6+18)$

$A = 108$

(12) 

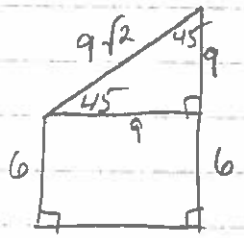
$A = \frac{1}{2}(3\sqrt{3})(4+10)$

$A = 21\sqrt{3}$

(13) 

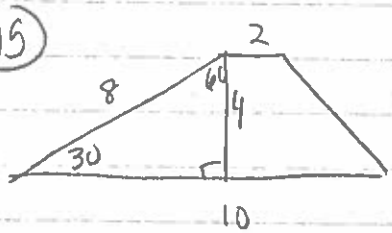
$A = \frac{1}{2}\left(\frac{3\sqrt{3}}{2}\right)(6+3)$

$A = \frac{27\sqrt{3}}{4}$

(14) 

$A = \frac{1}{2}(9)(6+15)$

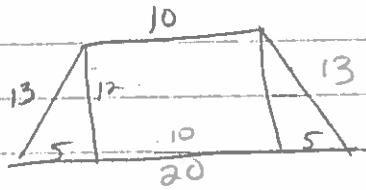
$A = 94.5$

(15) 

$A = \frac{1}{2} \cdot 4(10+2)$

$A = 24$

(16)



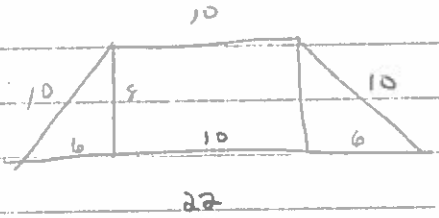
$5^2 + h^2 = 13^2$

$h = 12$

$A = \frac{1}{2}(12)(10+20)$

$A = 180$

(17)



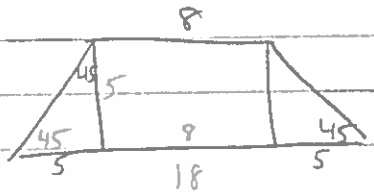
$6^2 + h^2 = 10^2$

$h = 8$

$A = \frac{1}{2}(8)(10+22)$

$A = 128$

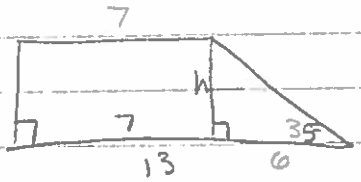
(18)



$A = \frac{1}{2}(5)(8+18)$

$A = 65$

(19)



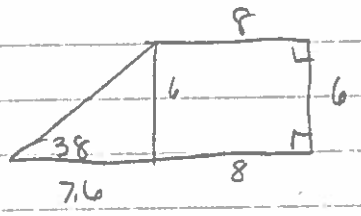
$\tan 35 = \frac{h}{6}$

$4.2 = h$

$A = \frac{1}{2}(4.2)(7+13)$

$A = 42$

(20)



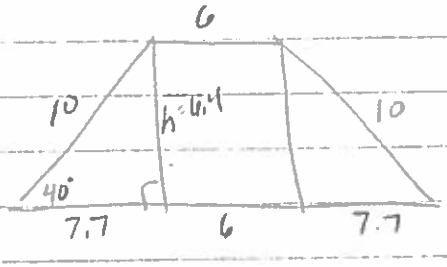
$\cos 38 = \frac{6}{b}$

$7.6 = b$

$A = \frac{1}{2}(6)(8+15.6)$

$A = 70.8$

(21)



$\sin 40 = \frac{h}{10}$

$6.4 = h$

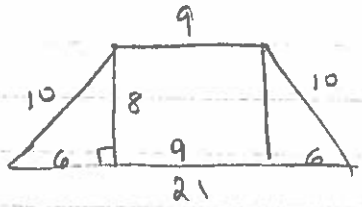
$\cos 40 = \frac{b}{10}$

$7.7 = b$

$A = \frac{1}{2}(6.4)(6+21.4)$

$A = 87.68$

(22)

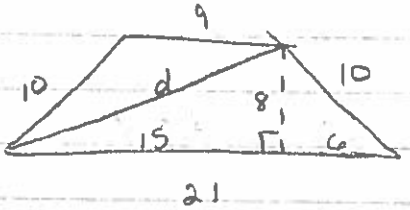


$6^2 + h^2 = 10^2$

$h = 8$

$A = \frac{1}{2}(8)(9+21)$

$A = 120$

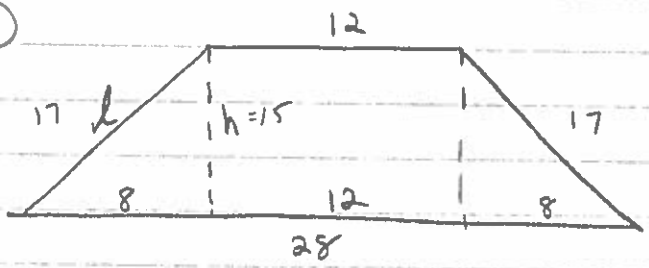


$8^2 + 15^2 = d^2$

$\sqrt{289} = d$

$17 = d$

(23)



$A = 300$

$300 = \frac{1}{2}h(12+28)$

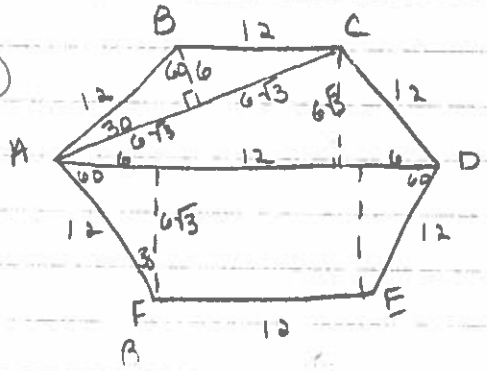
$15 = h$

$8^2 + 15^2 = l^2$

$17 = l$

$p = 74$

(26)



$A_{\Delta ABC} = \frac{1}{2}(6)(12\sqrt{3})$

$\boxed{A_{\Delta ABC} = 36\sqrt{3}}$

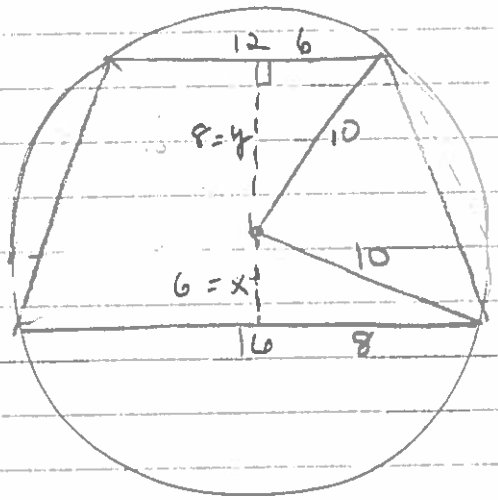
$A_{ADEF} = \frac{1}{2}(6\sqrt{3})(24+12)$

$\boxed{A_{ADEF} = 108\sqrt{3}}$

$A_{\Delta ADC} = \frac{1}{2}(24)(6\sqrt{3})$

$\boxed{A_{\Delta ADC} = 72\sqrt{3}}$

(26)



$8^2 + x^2 = 10^2$

$x = 6$

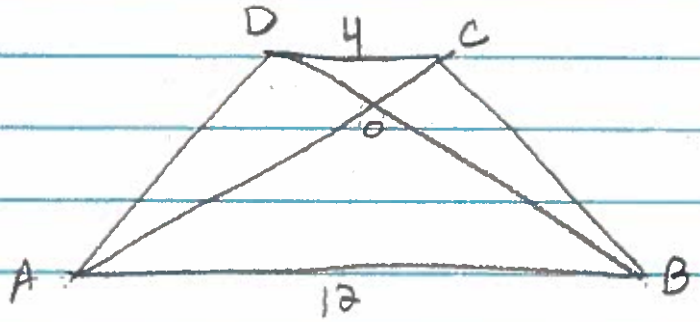
$6^2 + y^2 = 10^2$ $\quad (h = 8 + 6)$

$y = 8$

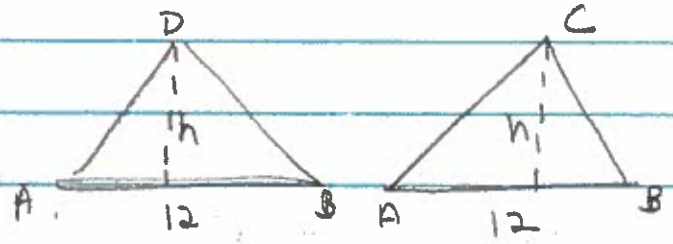
$A = \frac{1}{2}(14)(12 + 16)$

$A = 196$

(24)

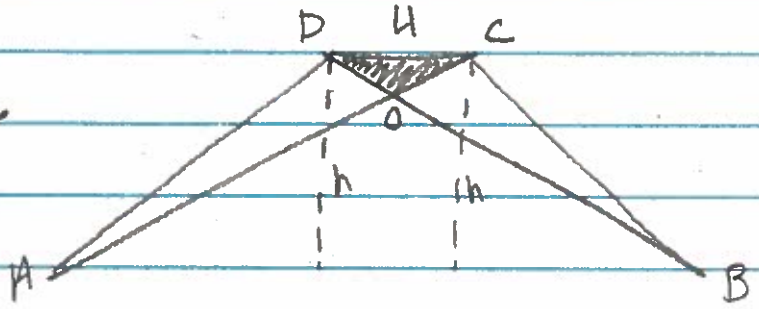


(A) $\triangle ABD$ and $\triangle ABC$



1:1

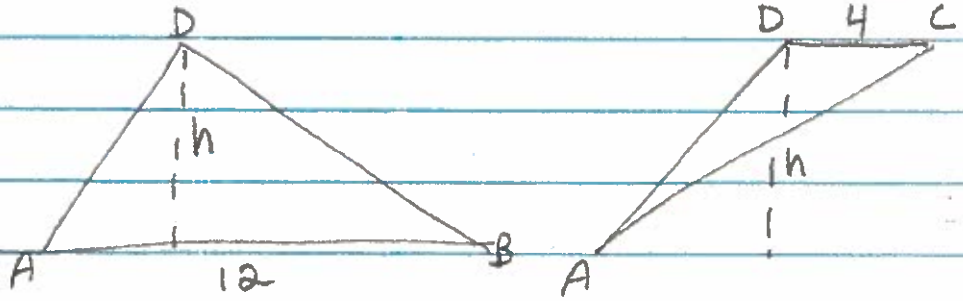
(B) $\triangle AOD + \triangle BOC$



$\triangle ADC + \triangle BCD$ is 1:1, so subtract

$\triangle DOC + \triangle AOD + \triangle BOC$ is 1:1

(C) $\triangle ABD + \triangle ADC$



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

$= 6h$

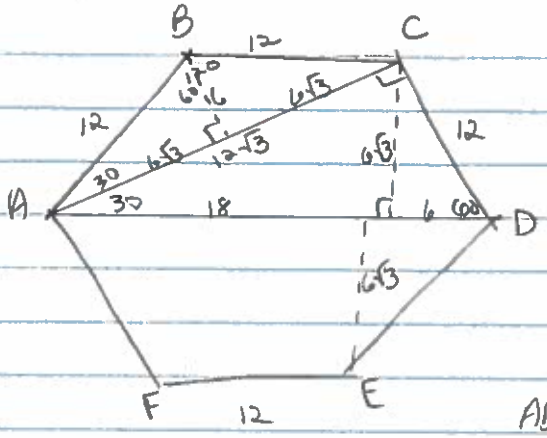
$A = \frac{1}{2}(4)(h)$

$= 2h$

3:1

11.3

(25)

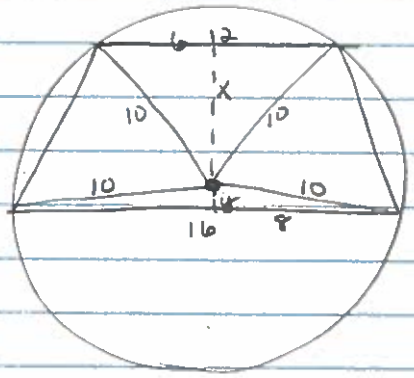


$\triangle ABC$: $A = \frac{1}{2}(12\sqrt{3})(6)$
$= 36\sqrt{3}$

$\triangle ACD$: $A = \frac{1}{2}(6\sqrt{3})(24)$
$= 72\sqrt{3}$

$ADEF$: $A = \frac{1}{2}(6\sqrt{3})(24+12)$
$= 108\sqrt{3}$

(26)



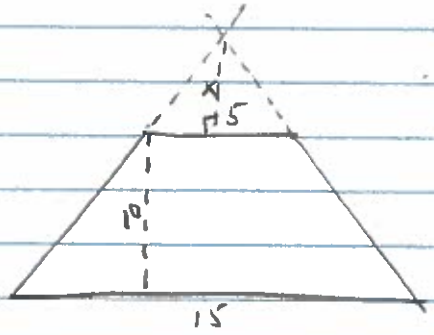
$x^2 + 6^2 = 10^2$
$x = 8$

$h = 8 + 6 = 14$

$8^2 + y^2 = 10^2$
$y = 6$

$A = \frac{1}{2}(14)(12+16)$
$A = 196$

(27) $A = 100$
$b_1 = 5$
$b_2 = 15$



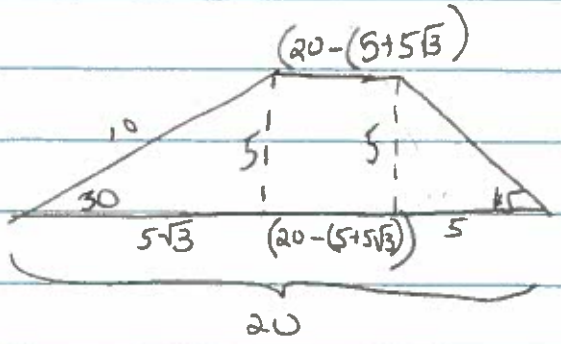
$100 = \frac{1}{2}(h)(5+15)$
$10 = h$

$100 = \frac{1}{2}(15)(10+x) - \frac{1}{2}(5)(x)$
$100 = 7.5(10+x) - 2.5x$
$100 = 75 + 5x$
$25 = 5x$
$5 = x$

$A_{big\,\triangle} = \frac{1}{2}(15)(15)$
$= 112.5$

$A_{sm.\triangle} = \frac{1}{2}(5)(5)$
$= 12.5$

(29)

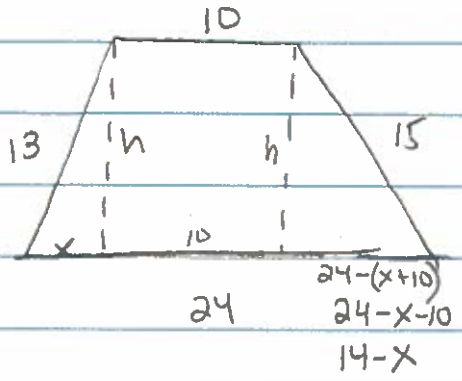


$$A = \frac{1}{2}(5)\left(20 + \left(20 - (5+5\sqrt{3})\right)\right)$$

$$\frac{5}{2}(20 + 15 - 5\sqrt{3})$$

$$\frac{5}{2}(35 - 5\sqrt{3}) = \frac{175 - 25\sqrt{3}}{2}$$

(30)



$x^2 + h^2 = 13^2$ $\quad (14-x)^2 + h^2 = 15^2$

$h^2 = 169 - x^2$ $\quad 196 - 28x + x^2 + h^2 = 225$

$h^2 = 28x - x^2 + 29$

$169 - x^2 = 28x - x^2 + 29$

$140 = 28x$

$x = 5$

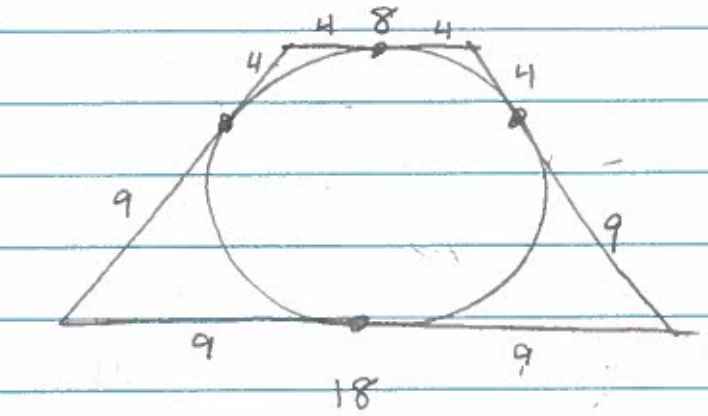
$5^2 + h^2 = 13^2$

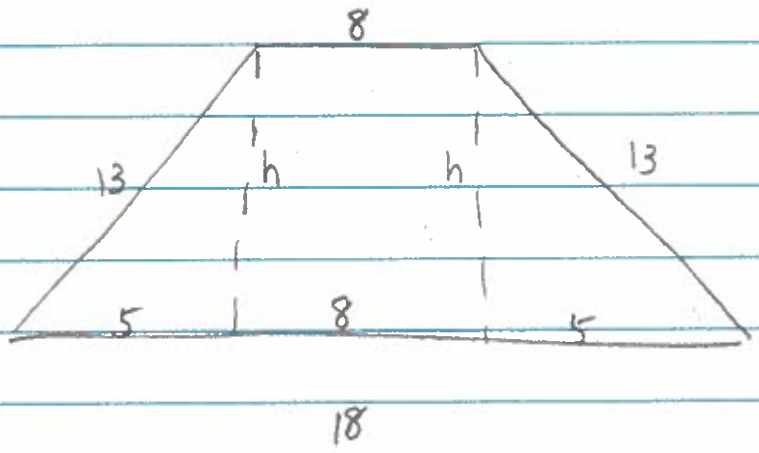
$h = 12$

$A = \frac{1}{2}(12)(10+24)$

$A = 204$

(31)





$5^2 + h^2 = 13^2$

$h = 12$

$A = \frac{1}{2}(12)(18+8)$

$\boxed{A = 156}$