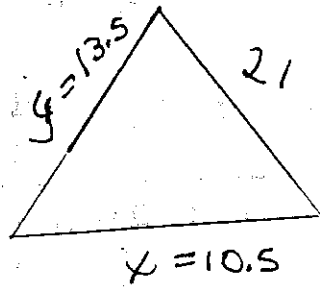


$$\frac{14}{21} = \frac{2}{3}$$

$$\frac{7}{x} = \frac{2}{3}$$

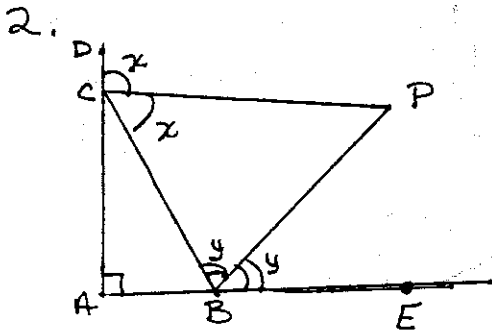
$$x = 10.5$$



$$\frac{y}{10.5} = \frac{2}{3}$$

$$y = 13.5$$

$$P = 45$$



$$m\angle ACB = 180 - 2x$$

$$m\angle ABC = 180 - 2y$$

$$\text{Sum } \angle\text{'s of } \Delta = 180$$

$$x + y + m\angle P = 180$$

$$135 + m\angle P = 180$$

$$m\angle P = 45$$

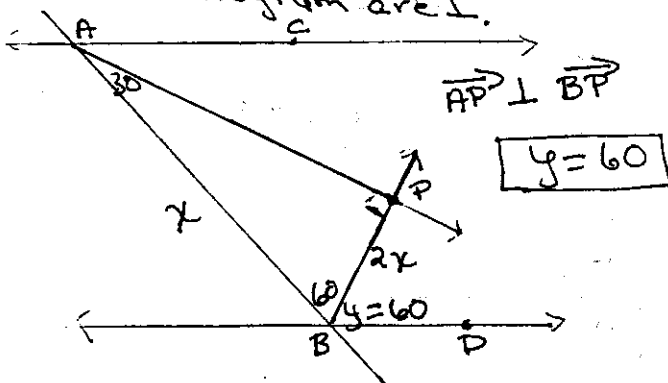
$$180 - 2x + 180 - 2y + 90 = 180$$

$$450 - 2x - 2y = 180$$

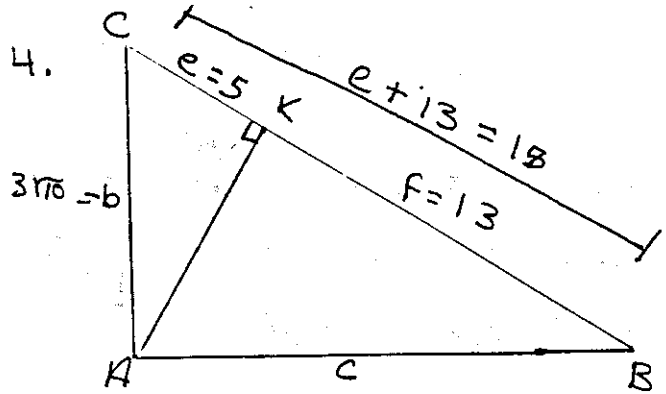
$$-2x - 2y = -270$$

$$x + y = 135$$

3. Bisectors of consecutive \angle 's of a parallelogram are \perp .



$$y = 60$$



$$\frac{3\sqrt{10}}{e} = \frac{e+13}{3\sqrt{10}}$$

$$e^2 + 13e = 90$$

$$e^2 + 13e - 90 = 0$$

$$(e-5)(e+18) = 0$$

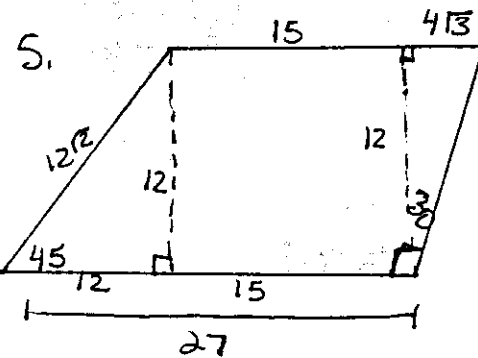
$$e-5=0 \quad e+18=0$$

$$e=5 \quad e=-18$$

$$\frac{c}{13} = \frac{18}{c}$$

$$c^2 = 234$$

$$c = 3\sqrt{26}$$



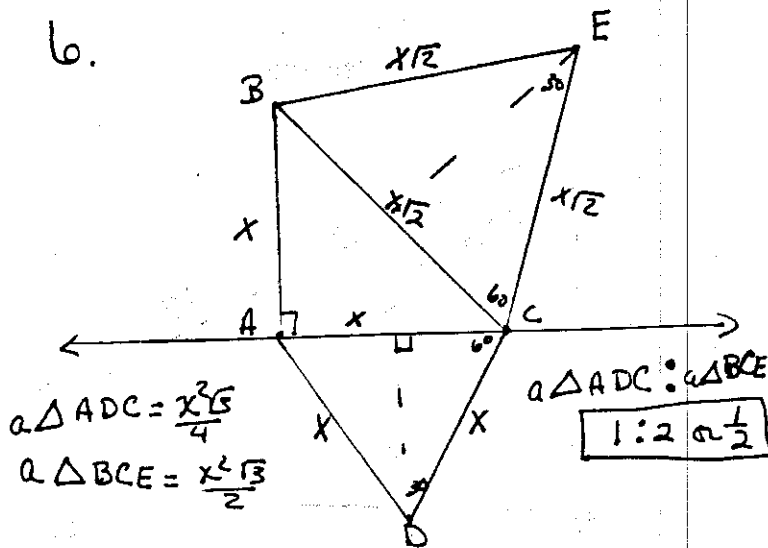
$$\frac{12}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = 4\sqrt{3}$$

$$A = \frac{1}{2}(12)(27 + 15 + 4\sqrt{3})$$

$$A = 6(42 + 4\sqrt{3})$$

$$A = 252 + 24\sqrt{3}$$

6.



$a\Delta ADC = \frac{x^2\sqrt{3}}{4}$

$a\Delta BCE = \frac{x^2\sqrt{3}}{2}$

$a\Delta ADC : a\Delta BCE$

$1:2$ or $\frac{1}{2}$

9. $m\angle 4 = m\angle 2 + m\angle 3$

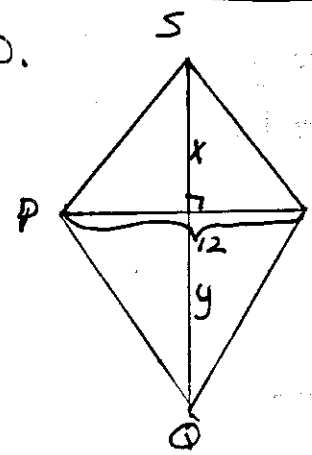
$m\angle 4 = c + \frac{d}{3} + 2b + \frac{c}{4}$

$m\angle 4 = \frac{12c}{12} + \frac{4d}{12} + \frac{24b}{12} + \frac{3c}{12}$

$m\angle 4 = \frac{12c + 4d + 24b + 3c}{12}$

$m\angle 4 = \frac{24b + 15c + 4d}{12}$

10.



$a\Delta PSR = \frac{1}{2}(12)x$

$a\Delta PQR = \frac{1}{2}(2)y$

$QS = x + y$

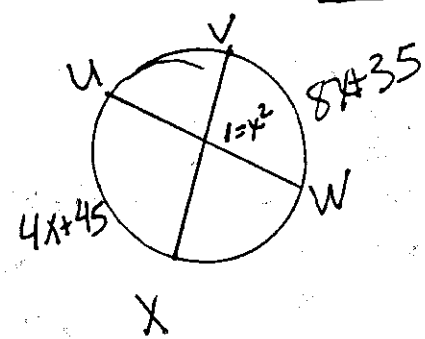
$\frac{1}{2}(12)x + \frac{1}{2}(2)y = 166.8$

$6x + 6y = 166.8$

$x + y = 27.8$

$QS = 27.8$

11.



$r^2 = \frac{1}{2}(4r + 45 + 8r + 35)$

$r^2 = 6r + 40$

$r^2 - 6r - 40 = 0$

$(r - 10)(r + 4) = 0$

$r - 10 = 0$ $r + 4 = 0$

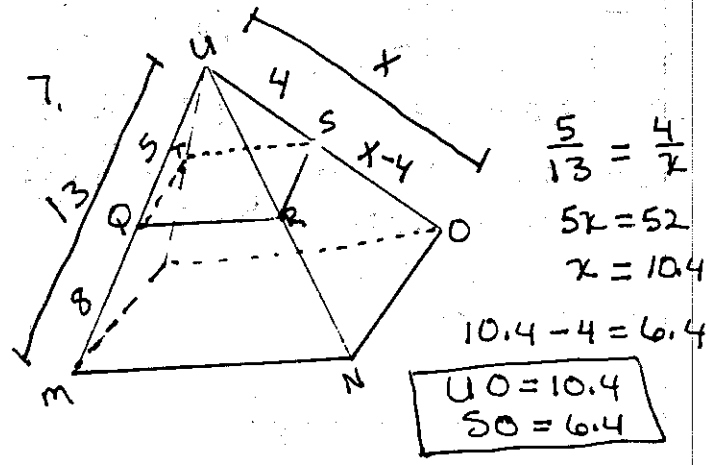
$r = 10$ $r = -4$

$m\angle 1 = r^2$

$m\angle 1 = (10)^2$

$m\angle 1 = 100$

7.



$\frac{5}{13} = \frac{4}{x}$

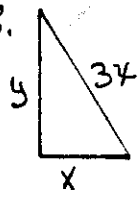
$5x = 52$

$x = 10.4$

$10.4 - 4 = 6.4$

$UO = 10.4$
 $SO = 6.4$

8.



$y^2 + x^2 = 9x^2$

$y^2 = 8x^2$

$y = 2\sqrt{2}x$

If $x = 1$

$3x = 3$

$2\sqrt{2}x = 2\sqrt{2}$

$1 + 3 + 2\sqrt{2} = 4 + 2\sqrt{2}$

Sum of sides between 6 and 8

$\therefore 1, 3, 2\sqrt{2}$

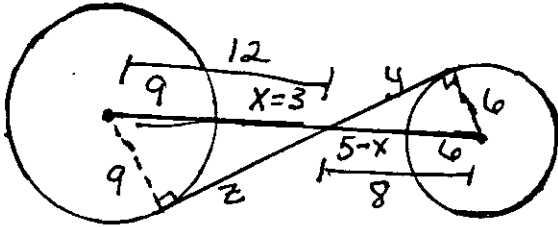
If $x = 2$

$3x = 6$

$2\sqrt{2}x = 4\sqrt{2}$

$2 + 6 + 4\sqrt{2} = 8 + 4\sqrt{2}$

2.



$$\frac{x}{9} = \frac{5-x}{6}$$

$$6x = 45 - 9x$$

$$15x = 45$$

$$x = 3$$

$$5-x = 2$$

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

$$y^2 + 36 = 64$$

$$y^2 = 28$$

$$y = 2\sqrt{7}$$

$$z^2 + 9^2 = 12^2$$

$$z^2 + 81 = 144$$

$$z^2 = 63$$

$$z = 3\sqrt{7}$$

$$y + z = 2\sqrt{7} + 3\sqrt{7}$$

$$= 5\sqrt{7}$$

13.

$$m\angle 1 + m\angle 2 + m\angle 3 = 180$$

$$x^3 - 70 + 185 - 4x^2 - 5x + 65 = 180$$

$$x^3 - 4x^2 - 5x + 180 = 180$$

$$x^3 - 4x^2 - 5x = 0$$

$$x(x^2 - 4x - 5) = 0$$

$$x \neq 0 \quad x^2 - 4x - 5 = 0$$

$$(x-5)(x+1) = 0$$

$$x-5=0 \quad x+1=0$$

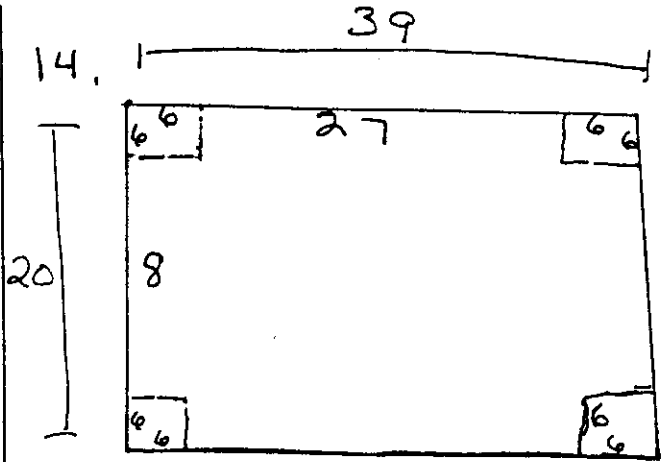
$$x=5 \quad x=-1$$

$$m\angle 2 = 185 - 4x^2 - 5x$$

$$m\angle 2 = 185 - 4(5)^2 - 5(5)$$

$$m\angle 2 = 185 - 100 - 25$$

$$m\angle 2 = 60$$



$$V = (6)(8)(27)$$

$$V = 1296$$

15. $x = 1^{\text{st}}$ angle ; $y = 2^{\text{nd}}$ angle

$$\frac{90-x}{90-y} = \frac{3}{2}$$

$$\frac{180-x}{180-y} = \frac{9}{8}$$

$$2(90-x) = 3(90-y)$$

$$8(180-x) = 9(180-y)$$

$$180 - 2x = 270 - 3y$$

$$1440 - 8x = 1620 - 9y$$

$$-2x + 3y = 90$$

$$-8x + 9y = 180$$

$$4(-2x + 3y) = 4(90)$$

$$-8x + 12y = 360$$

$$8x - 12y = -360$$

$$-8x + 9y = 180$$

$$-3y = -180$$

$$y = 60$$

$$-2x + 3y = 90$$

$$-2x + 3(60) = 90$$

$$-2x = -90$$

$$x = 45$$