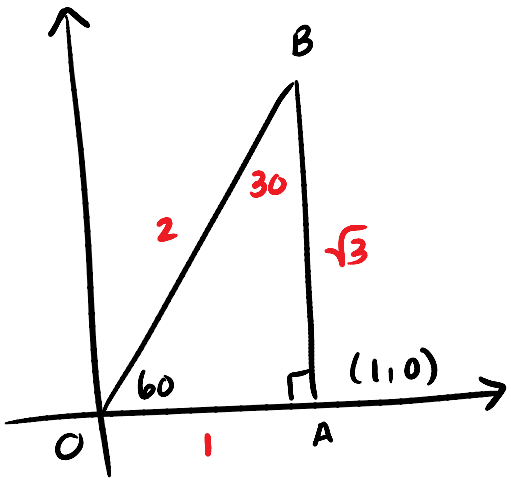
pgs. 409 - 411
#12 - 14, 17, 18, 20, 21, 25, 27

#12 a. coordinates of B $(1, \sqrt{3})$

b. slope of OB

$(0,0)$ $(1,\sqrt{3})$ $m = \frac{\sqrt{3}}{1} = \sqrt{3}$

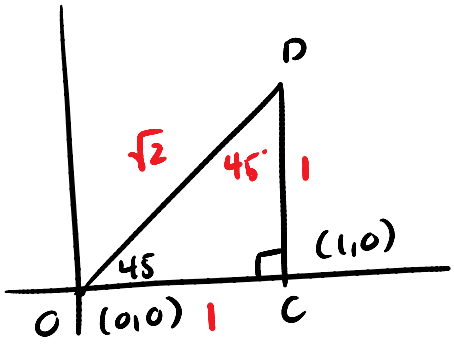
c. $\frac{AB}{OA} = \frac{\sqrt{3}}{1} = \sqrt{3}$



#13 a. coordinates of D $(1,1)$

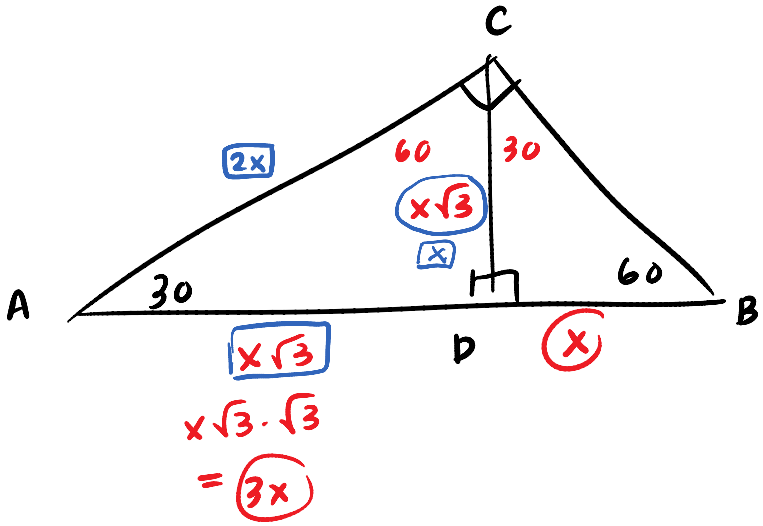
b. slope of $\overleftrightarrow{OD}$ 1

c. tan 45° 1

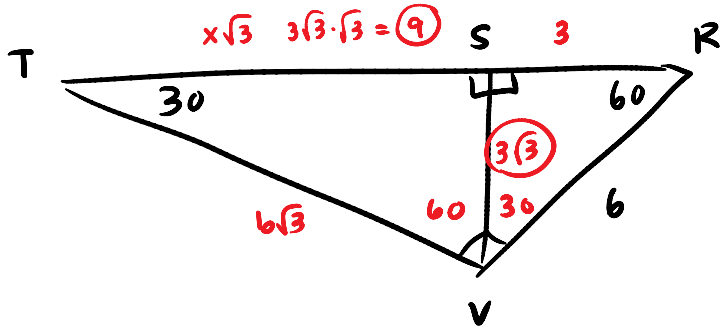


#14 Show that the altitude to the hypotenuse divides the hypotenuse in the ratio 1:3

$\frac{x}{3x} = \frac{1}{3}$



#17



Find: a. VS $3\sqrt{3}$

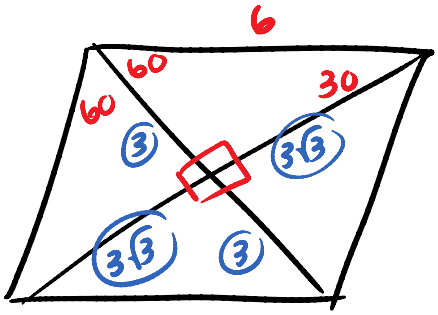
b. ST 9

c. VT $6\sqrt{3}$

d. Ratio of perimeter of ΔVSR to ΔVRT

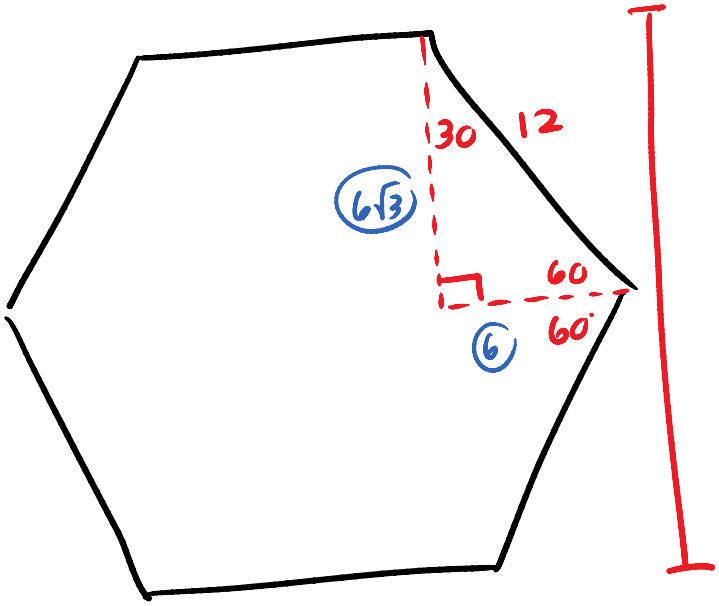
$$\frac{\Delta VSR}{\Delta VRT} = \frac{9+3\sqrt{3}}{18+6\sqrt{3}} = \frac{3(3+\sqrt{3})}{6(3+\sqrt{3})} = \frac{3}{6} = \boxed{\frac{1}{2}}$$

#18 One of the angles of a rhombus has a measure of 120. If the perimeter of the rhombus is 24, find the length of each diagonal.



$d_1 = 6$
$d_2 = 6\sqrt{3}$

#20 Find the span



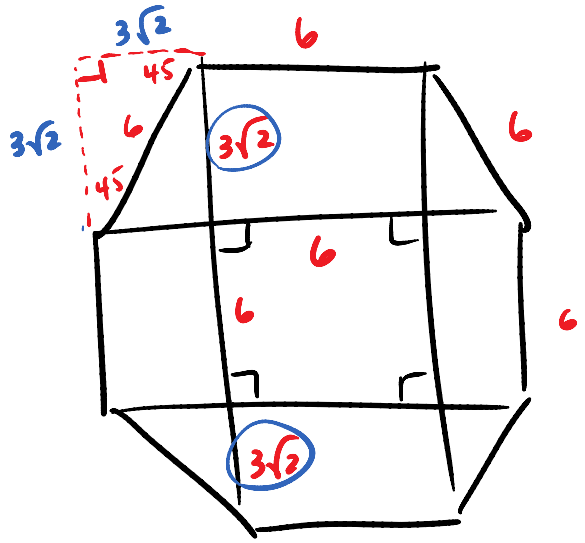
ext $\angle = \frac{360}{6} = 60$

int $\angle = 120$

Span $= 6\sqrt{3} + 6\sqrt{3} = \boxed{12\sqrt{3}}$

OR divide into 6 EQUILATERAL Δ's

#21



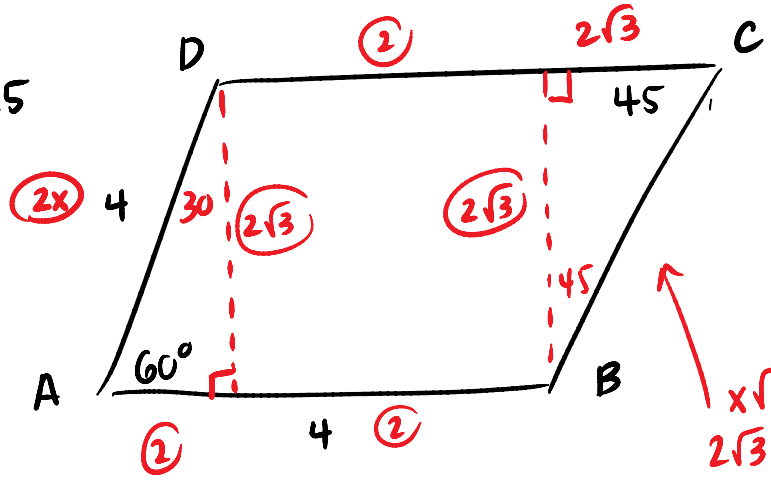
a.
Find perimeter = $6(8) = 48$

b. Find span: $\frac{x\sqrt{2}}{\sqrt{2}} = \frac{6}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}}$

$x = \frac{6\sqrt{2}}{2} = 3\sqrt{2}$

Span $= 6 + 3\sqrt{2} + 3\sqrt{2}$
$= \boxed{6 + 6\sqrt{2}}$

#25

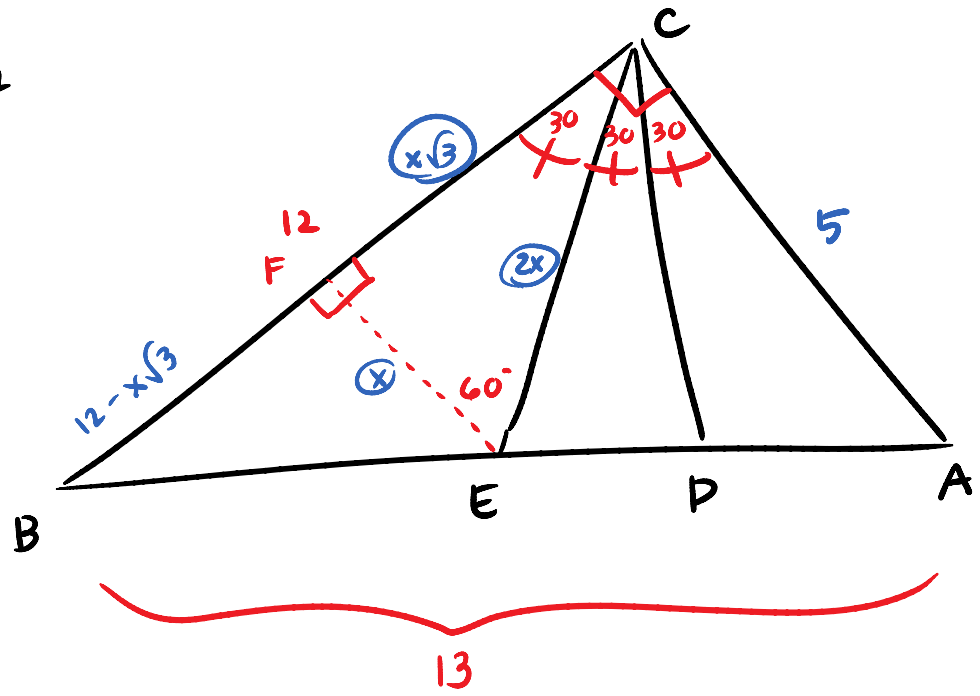


a Find DC: $\boxed{2 + 2\sqrt{3}}$

b. Find BC $\boxed{2\sqrt{6}}$

$x\sqrt{2}$
$2\sqrt{3} \cdot \sqrt{2} = 2\sqrt{6}$

#27



$\Delta BEF \sim \Delta BAC$ by AA~

$$\frac{EF}{AC} = \frac{BF}{BC}$$

$$\frac{x}{5} = \frac{12 - x\sqrt{3}}{12}$$

$$12x = 60 - 5x\sqrt{3}$$

$$12x + 5x\sqrt{3} = 60$$

$$x(12 + 5\sqrt{3}) = 60$$

$$x = \frac{60}{12 + 5\sqrt{3}}$$

$$x = \frac{60}{12 + 5\sqrt{3}} = 5 + \frac{12}{\sqrt{3}}$$