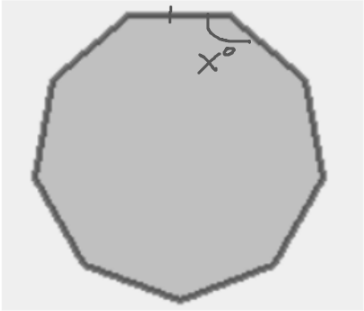
1. Find the measure of one interior angle of the regular polygon. Round to the nearest tenth if necessary.



9-sides

$$S = 180(9-2)$$
$$= 180(7)$$
$$= \frac{1260^\circ}{9} = 140^\circ$$

2. Find the measure of one exterior angle of a regular 27-gon. Round your answer to the nearest tenth if necessary.

$$\frac{360}{27} = 13.3^\circ$$

3. The London Eye is a famous Ferris Wheel in London. The car at each vertex of a Ferris Wheel holds a maximum of twenty-five people. The sum of the interior angles of the Ferris Wheel is 11160°. How many cars are on the Ferris Wheel? How many people can ride on the Ferris Wheel?

$S = 180(n-2)$

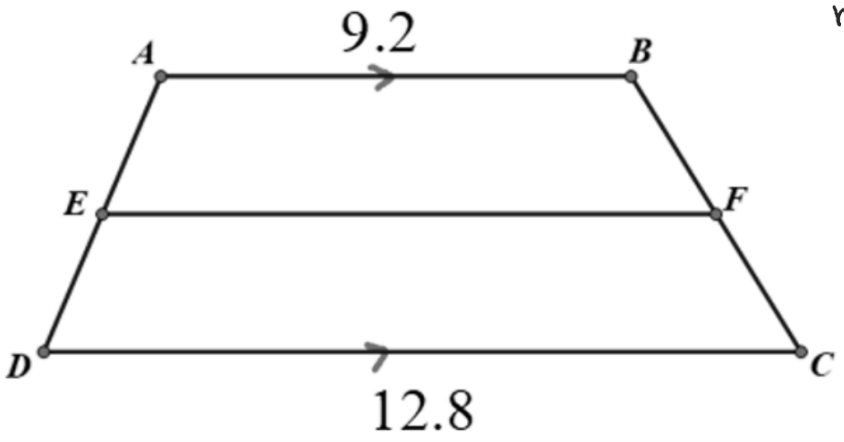
$\frac{11160}{180} = \frac{180(n-2)}{180}$

$62 = n-2$

$n = 64$ cars

$(64)(25) = 1600$ people

4. Find the length of the midsegment of the trapezoid.



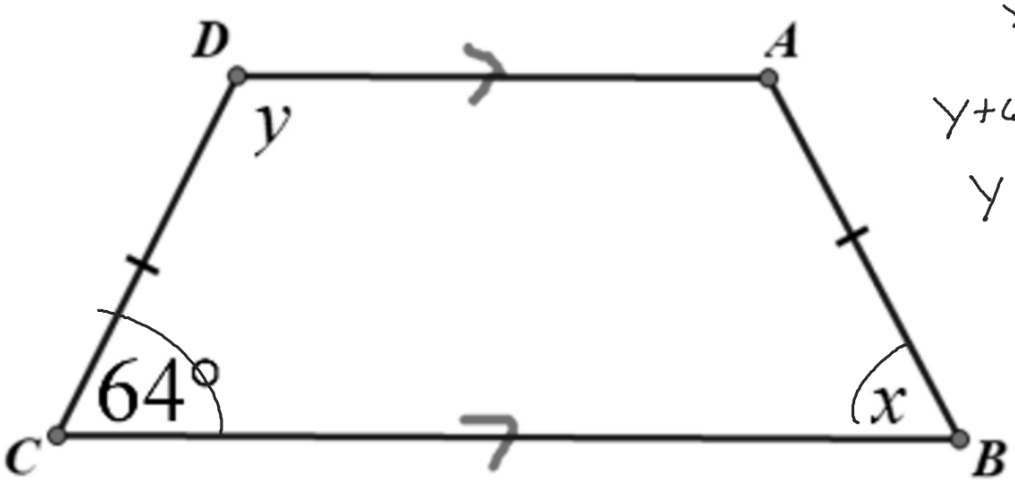
$$\text{midsegment} = \frac{b_1 + b_2}{2}$$

$$= \frac{9.2 + 12.8}{2}$$

$$= \frac{22}{2}$$

$$= 11$$

5. Find the measure of the variables.

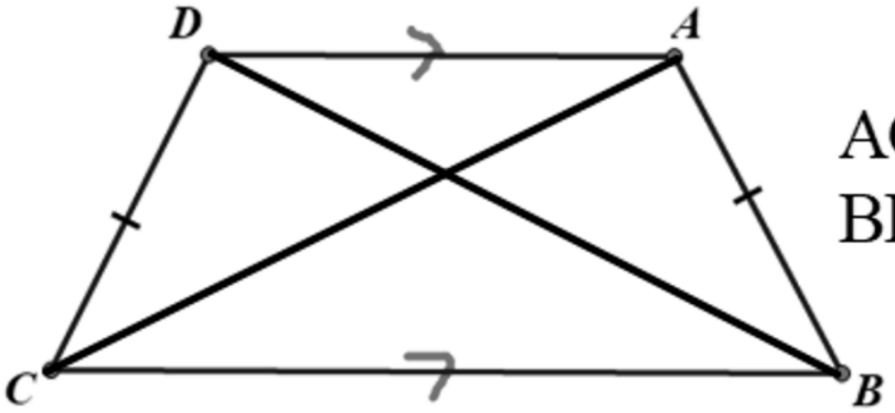


$x = 64^\circ$

$y + 64 = 180$

$y = 116^\circ$

6. Find the length of BD. Show your thinking.



$AC = 6x+7$

$BD = 8x-13$

$AC = BD$

$6x+7 = 8x-13$

$7 = 2x-13$

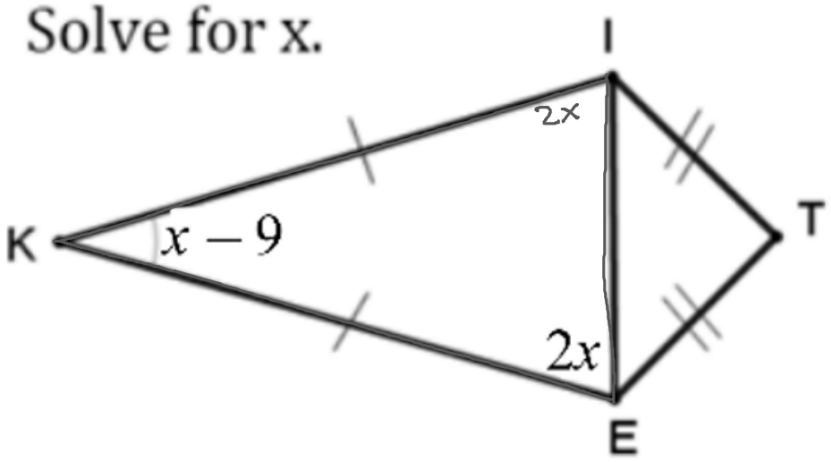
$20 = 2x$

$x = 10$

$BD = 8(10)-13$

$= 67$

Solve for x.

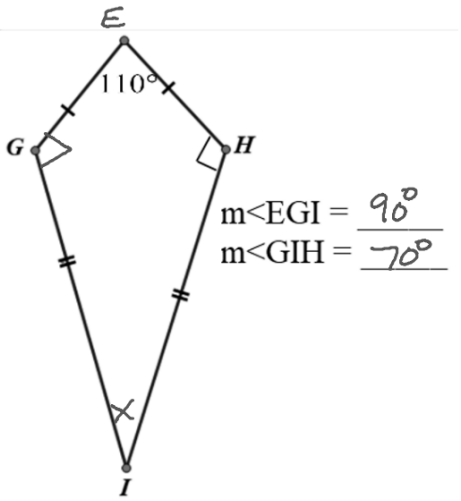


$2x+2x+x-9=180$

$5x-9=180$

$5x=189$

$x=37.8$



m<EGI = 90°

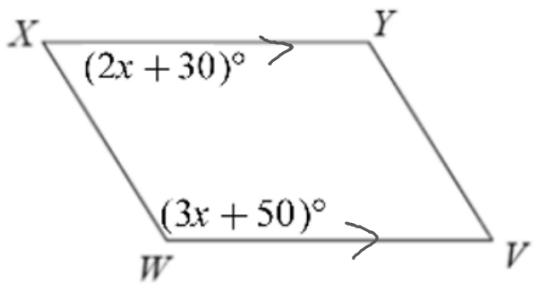
m<GIH = 70°

$X + 90 + 90 + 110 = 360$

$X + 290 = 360$

$X = 70°$

Solve for x. Each figure is a parallelogram.



$2x+30+3x+50=180$

$5x+80=180$

$5x=100$

$x=20$

Solve for x. Each figure is a parallelogram.

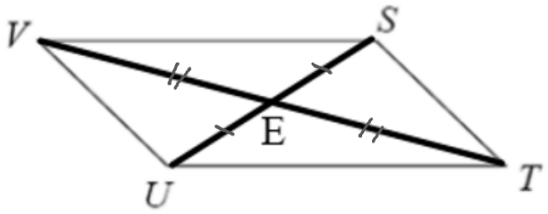
and y

$VE = 2y + 2$

$ET = 5y - 10$

$SE = 6$

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



$VE = ET$

$2y + 2 = 5y - 10$

$2 = 3y - 10$

$12 = 3y$

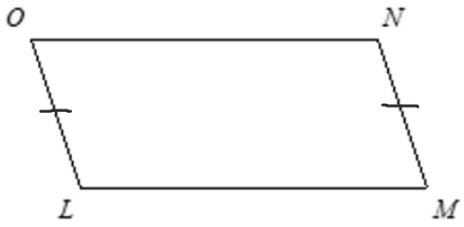
$y = 4$

$SE = EU$

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

$x = 18$

LMNO is a parallelogram. If $NM = x + 5$ and $OL = 2x + 3$, find the value of x and then find NM and OL.



$MN = OL$

$x + 5 = 2x + 3$

$5 = x + 3$

$x = 2$

$NM = 2 + 5$

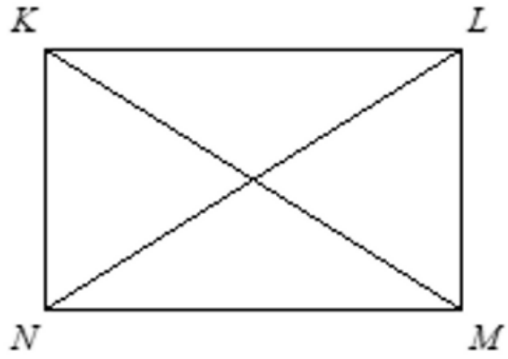
$= 7$

$OL = 2(2) + 3$

$= 4 + 3$

$= 7$

In rectangle $KLMN$, $KM = 10x + 24$ and $LN = 64$. Find the value of x.



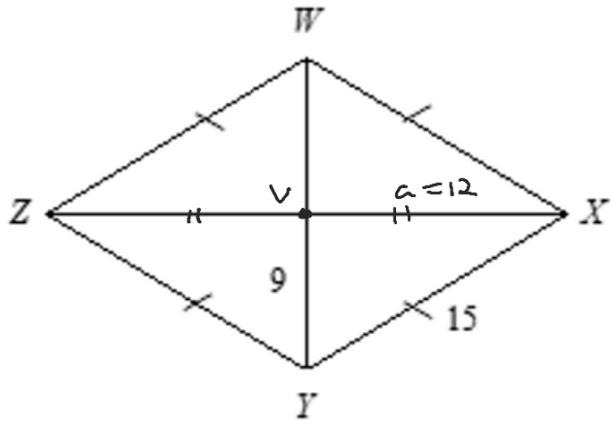
$KM = LN$

$10x + 24 = 64$

$10x = 40$

$x = 4$

What is XZ? The diagram is not to scale.



$a^2+b^2=c^2$

$a^2+9^2=15^2$

$a^2+81=225$

$a^2=144$

$a=12$

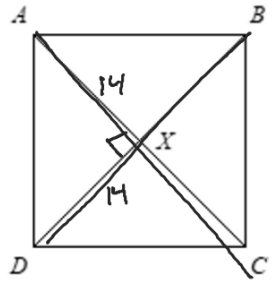
$XZ=24$

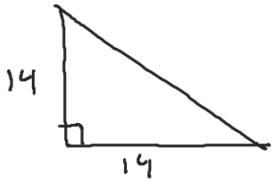
Figure $ABCD$ is a square. If $AC + BD = 56$, what is the area, in square units, of $\triangle AXD$?

$x + x = 56$

$2x = 56$

$x = 28$





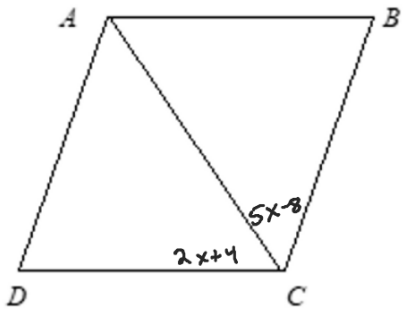
$A_\Delta = \frac{1}{2}bh$

$= \frac{1}{2}(14)(14)$

$= \frac{1}{2}(196)$

$= 98$

In quadrilateral $ABCD$, $m\angle ACD = 2x + 4$ and $m\angle ACB = 5x - 8$. For what value of x is $ABCD$ a rhombus?



$$2x+4 = 5x-8$$
$$4 = 3x-8$$
$$12 = 3x$$
$$x = 4$$

Classify Quadrilateral ABCD as a parallelogram, rectangle, rhombus, square, kite, or trapezoid.

A(3, 2), B(7, 0), C(11, 2), and D(7, 4).

4 ≅ sides & Diagonals not ≅.

$AB = \sqrt{(7-3)^2+(0-2)^2}$

$= \sqrt{(4)^2+(-2)^2}$

$= \sqrt{16+4} = \sqrt{20}$

$CD = \sqrt{(7-11)^2+(4-2)^2}$

$= \sqrt{(-4)^2+(2)^2}$

$= \sqrt{16+4} = \sqrt{20}$

$BC = \sqrt{(11-7)^2+(2-0)^2}$

$= \sqrt{(4)^2+(2)^2}$

$= \sqrt{16+4} = \sqrt{20}$

$AD = \sqrt{(7-3)^2+(4-2)^2}$

$= \sqrt{4^2+2^2}$

$= \sqrt{16+4} = \sqrt{20}$

$AC = \sqrt{(11-3)^2+(2-2)^2}$

$= \sqrt{8^2+0^2}$

$= 8$

$BD = \sqrt{(7-7)^2+(4-0)^2}$

$= \sqrt{0^2+4^2}$

$= 4$