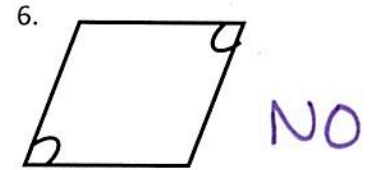
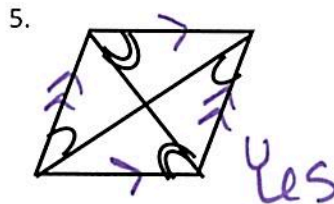
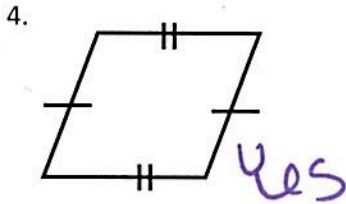
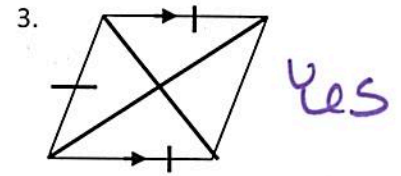
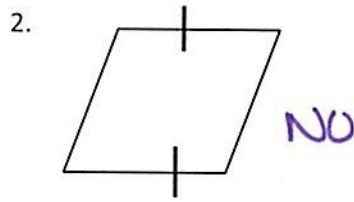
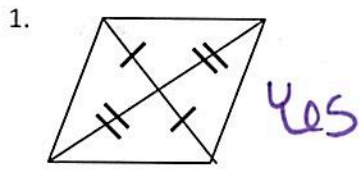
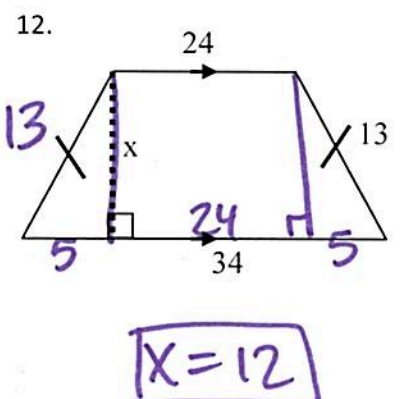
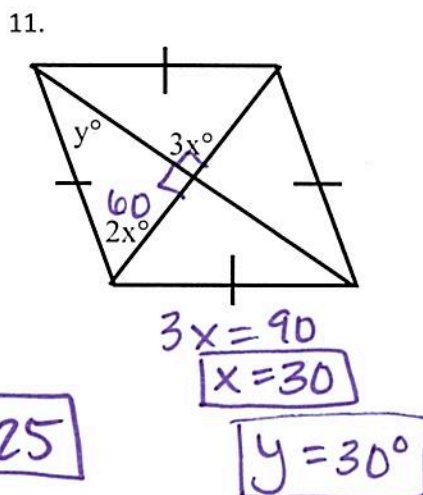
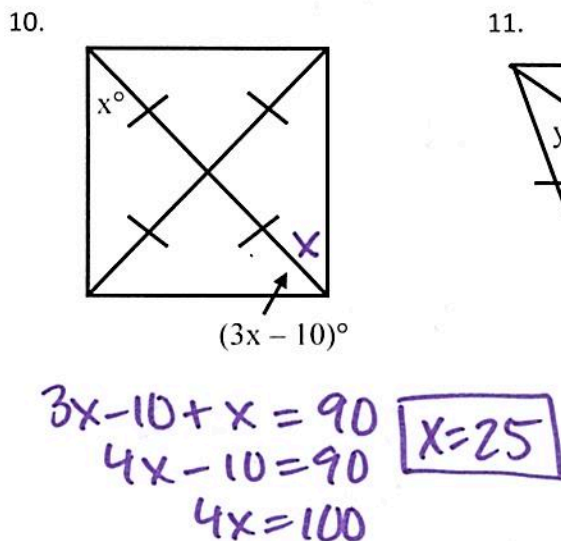
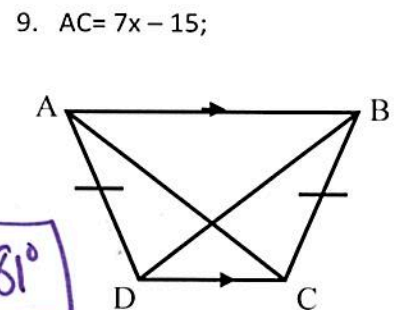
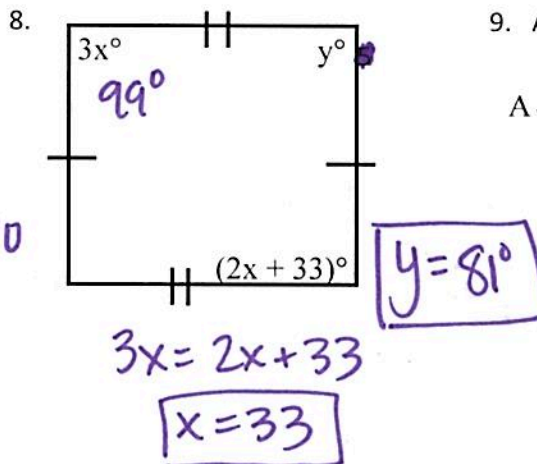
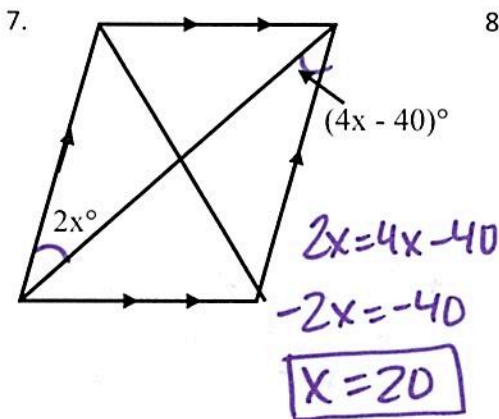


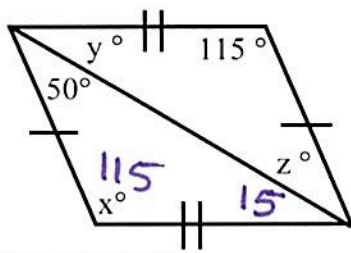
I. Based on the markings, decide if each figure is a parallelogram. Justify your answer.



II. Find the values of the variables for each figure.



13.

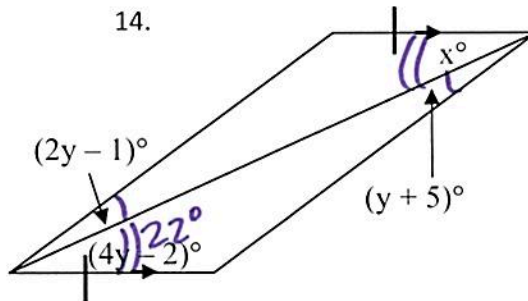


$$x = 115^\circ$$

$$y = 15$$

$$z = 50$$

14.

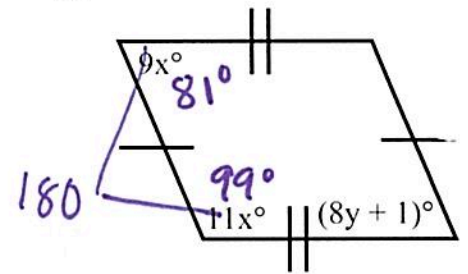


$$2y - 1 = y + 5$$

$$y = 6$$

$$x = 22^\circ$$

15.



$$20x = 180$$

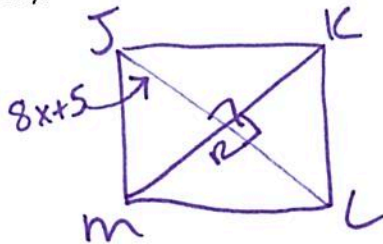
$$x = 9$$

$$81 = 8y + 1$$

$$80 = 8y$$

$$y = 10$$

16. JKLM is a square with diagonals meeting at R. If  $m\angle MJR = (8x + 5)^\circ$ , and  $m\angle KRL = (7y + 6)^\circ$ , find the value of  $x$  &  $y$ .



$$8x + 5 = 45$$

$$8x = 40$$

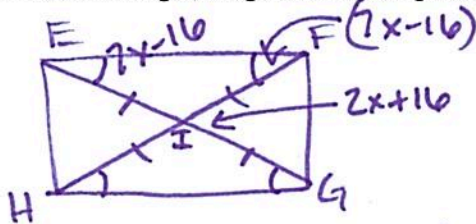
$$x = 5$$

$$7y + 6 = 90$$

$$7y = 84$$

$$y = 12$$

17. EFGH is a rectangle, diagonals meeting at I. If  $m\angle FIG = (2x + 16)^\circ$  &  $m\angle EFH = (7x - 16)^\circ$ , find  $m\angle FHG$ .



$$7(4) - 16 = 12^\circ$$

$$7x - 16 + 7x - 16 = 2x + 16$$

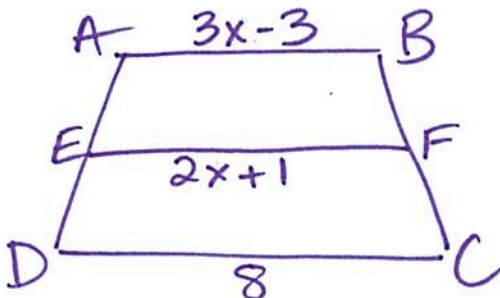
$$14x - 32 = 2x + 16$$

~~$$14x - 16 = 2x + 16$$~~

~~$$12x = 32$$~~

$$12x = 48 \quad x = 4$$

18. ABCD is a trapezoid with legs BC and AD. EF is the midsegment. If  $AB = 3x - 3$ ,  $EF = 2x + 1$ , and  $DC = 8$ , find the value of  $x$ .



$$\frac{3x - 3 + 8}{2} = 2x + 1$$

$$\frac{3x + 5}{2} = (2x + 1)2$$

$$3x + 5 = 4x + 2$$

$$3 = x$$

19. The measure of an interior angle of a regular polygon is given. Find the number of sides in each polygon.

a. 150

12

b. 160

18

c. 168.75

32

d. 165

24

$$\frac{(n-2)180}{n} = 150$$

$$180n - 360 = 150n$$

20. The measure of each interior angle of a regular polygon is 8 times that of an exterior angle. How many sides are in the polygon?

$$\frac{360}{n} = 20$$

$$160^\circ$$

$$20^\circ$$

$n = 18$

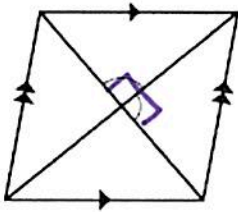
$$8x + x = 180$$

$$9x = 180$$

$$x = 20$$

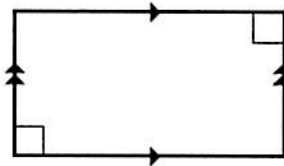
For 24 – 26, determine the most specific name for each quadrilateral:

21.



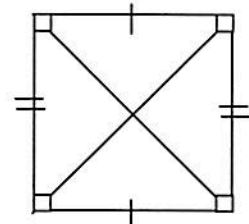
rhombus

22.



rectangle

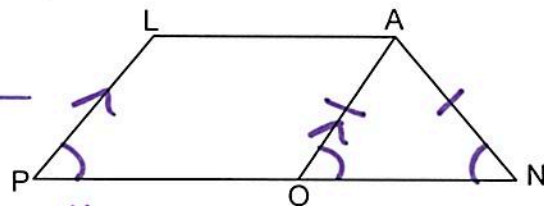
23.



rectangle

24. Given: parallelogram  $PLAO$  with  $AO \cong AN$ .

Prove:  $\angle P \cong \angle N$



1.  $\square PLAO, \overline{AO} \cong \overline{AN}$

1. Given

2.  $\overline{LP} \parallel \overline{AO}$

2. opp sides  $\parallel$  in  $\square$

3.  $\angle P \cong \angle AON$

3. Corr.  $\angle$  Postulate

4.  $\angle AON \cong \angle ANO$

4. Base Angles Thm

5.  $\angle P \cong \angle ANO$   
(N)

5. Transitive

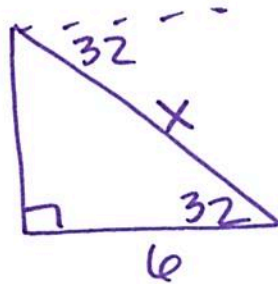


## Trig Review

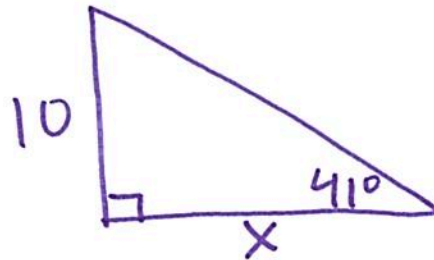
- 1) A coconut fell from a tree and rolled 6 feet away from the base of the tree. A monkey at the top of the tree looked at the coconut with an angle of depression of  $32^\circ$ . How far would the monkey have to jump to get the coconut?

$$\cos 32 = \frac{6}{x}$$

$$x = 7.075$$



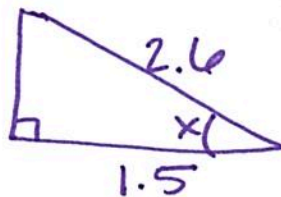
- 2) A basketball hoop is 10 ft tall, from the rim to the ground. If LeBron James dunks the ball from a  $41^\circ$  angle of elevation, about how far away is he horizontally from the basket?



$$\tan 41 = \frac{10}{x}$$

$$x = 11.504$$

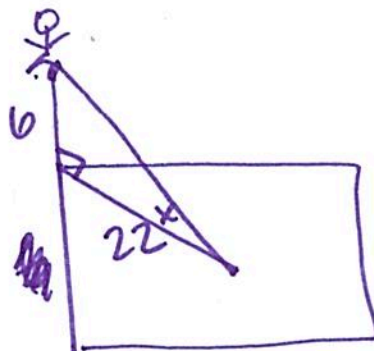
- 3) Kate is resting her elbow on her desk but raises her hand diagonally to answer Mrs. Worthington's question. She isn't called on and she thinks it's because Mrs. Worthington thinks she's bad at trig. So, to boost her self-esteem, she decides to find the angle of elevation between her arm and the desk. Her arm is 2.6 ft long and her desk is 1.5 feet. What is the angle of elevation?



$$\cos^{-1}\left(\frac{1.5}{2.6}\right)$$

$$x = 55^\circ$$

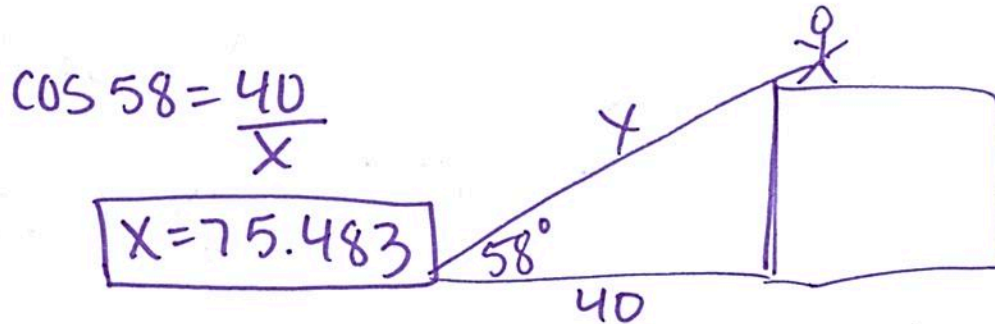
- 4) Wrestler John Cena is facing his toughest opponent, Hayden Arch-man. In the first moments of the match John Cena grabs Arch-man and stands on top of the corner of the ring, 6 feet above the mat. John Cena then throws Arch-man 22 feet from the base of the corner post. What is the angle of elevation from the floor that Arch-man is looking up at John Cena?



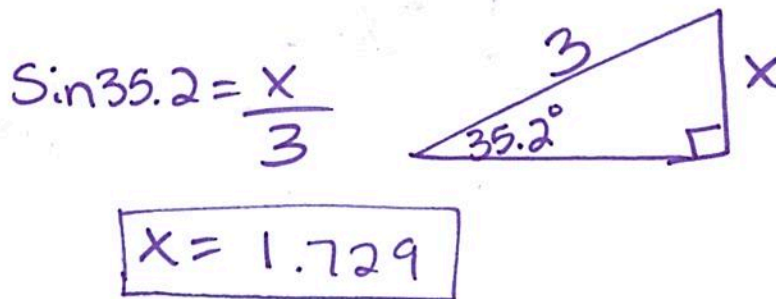
$$\tan^{-1}\left(\frac{6}{22}\right)$$

$$x = 15^\circ$$

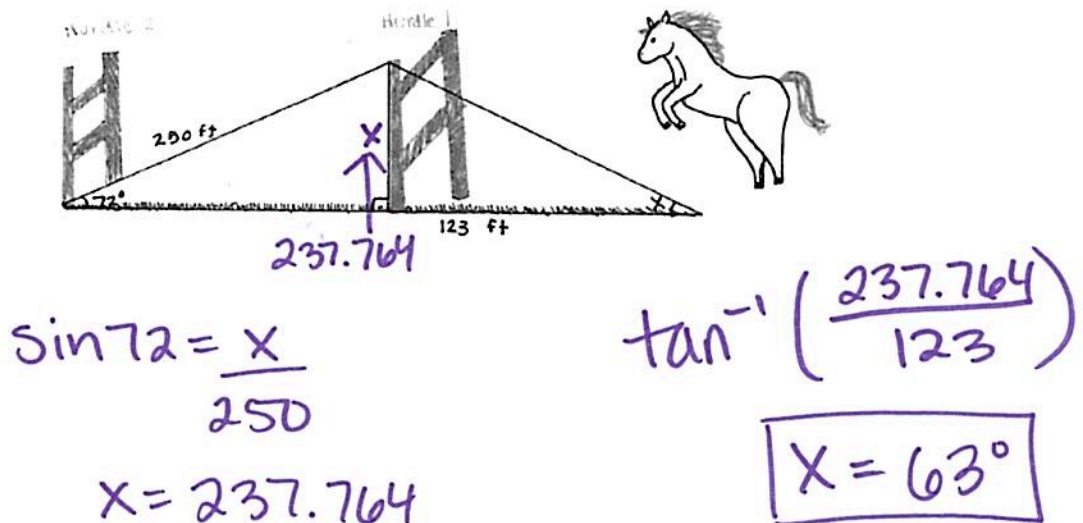
- 5) Gatts and the commander of the Purple Rhino army are fighting atop the castle high above the battlefield. Nasferatu Zodd is riding on the battlefield, 40 feet away from the castle, looking up at Gatts at an angle of elevation of  $58^\circ$ . Gatts' sword breaks. What distance would Zodd have to throw his own sword to save Gatts?



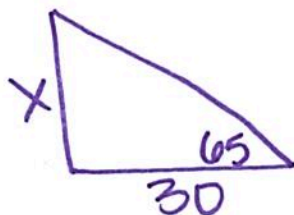
- 6) Jack is really good at swimming. His flawless backstroke technique puts his arm at an angle of elevation to the water of exactly  $35.2^\circ$ . Being that Jack's arms are very long, not unlike his good buddy Michael Phelps, they are 3 feet long. How far vertically does his hand have to travel to hit the water?



- 7) A horse has to jump over hurdles to prepare for a race. It stands 123 feet away from hurdle 1. The distance from the bottom of the second hurdle to the top of the first hurdle is 250 feet and creates an angle of  $72^\circ$  with the ground. At what angle will the horse have to jump to pass over the first hurdle?



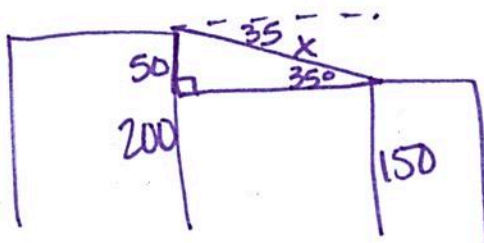
- 8) Ansh is a horned rhino. One leg is shorter than the other, however, when he runs, he stumbles. Ansh fell out of a building and landed 30 feet away from the building on a trampoline. The angle of elevation from Ansh to the top of the building is  $65^\circ$ . How tall is the building?



$$\tan 65 = \frac{x}{30}$$

$$x = 64.335$$

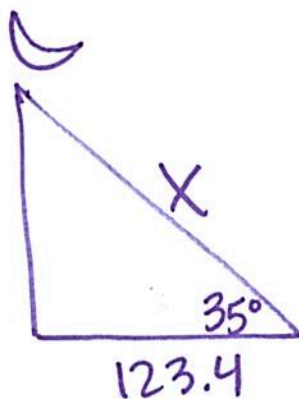
- 9) Mrs. Rogers is standing on the edge of a 200 ft building and Principal Warstler is standing on the edge of a 150 ft building. Mrs. Rogers is going to fly from her building to Principal Warstler at an angle of depression of  $35^\circ$  in order to steal his box of Thin Mints. What is the distance Mrs. Rogers will travel?



$$\sin 35 = \frac{50}{x}$$

$$x = 87.172$$

- 10) Jimmy, a six year old boy, wants to build a ladder that will reach the moon. The ladder forms a  $35^\circ$  with the ground. Jimmy is very intelligent and estimated that the length from him to his door step (directly below the moon) is 123.4 ft. How long will the ladder need to be?



$$\cos 35 = \frac{123.4}{x}$$

$$x = 150.644$$