

Name: _____

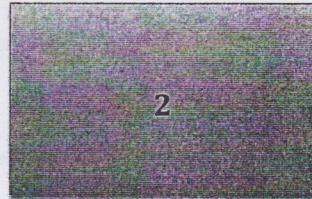
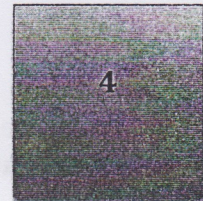
Date: _____

High

95%

Post-Test on Quadrilaterals (100 points)

Matching: For problems 1-10, match the number of each shape to the correct properties. You may use each number **more than once**. Also, you **can use multiple numbers for each property** because some properties apply to more than one shape. Each problem in this section is worth 2 points each.

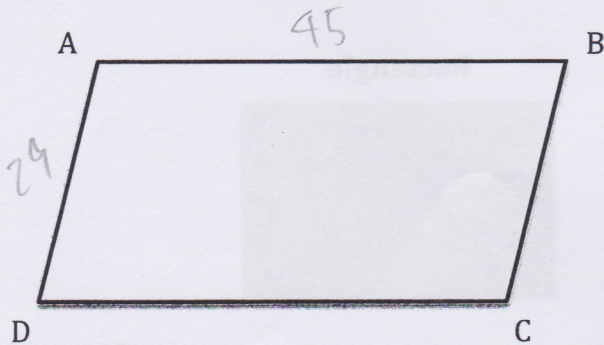
Parallelogram**Rectangle****Rhombus****Square**

- ✓ 1. 1,2,3,4 Opposite sides are congruent.
- ✓ 2. 1,2,3,4 Opposite sides are parallel.
- ✓ 3. 1,2,3,4 Opposite angles are congruent.
- ✓ 4. 1,2,3,4 Consecutive angles are supplementary.
- ✓ 5. ~~2,4~~ 1,2,3,4 Diagonals bisect each other.
- ✓ 6. 2,4 Four right angles.
- 2 7. ~~3~~ 2,4 Diagonals are congruent.
- 1 8. 3,4 Four congruent sides.
- ✓ 9. 4,3 Diagonals are perpendicular.
- 1 10. ~~1,2,3,4~~ Diagonals bisect opposite angles.

-34

Directions: For problems 11-21, there are various quadrilaterals with given lengths and angles. Solve for the lengths and angles for which you are asked. Keep in mind that these figures are **NOT** necessarily drawn to scale. If a length or an angle that you are solving for is not a whole number, round to the nearest tenth. This assignment will not be graded, but it will be used to plan out future lessons on this topic. **Please show your work.**

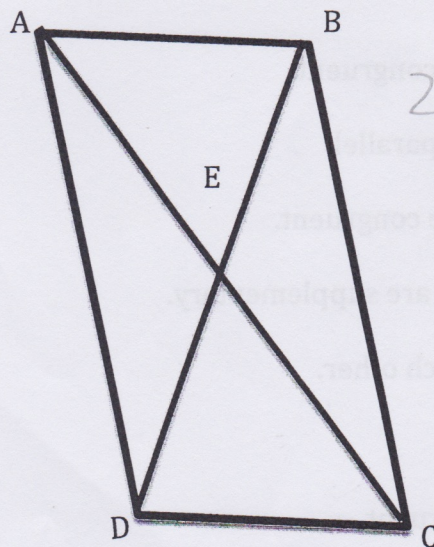
11. The figure below is a parallelogram. If $AB = 45$ and $AD = 29$, what are the length values for BC and DC ? (4 points)



$$BC = \underline{29} \quad \checkmark$$

$$DC = \underline{45} \quad \checkmark$$

12. The figure below is a parallelogram with diagonals. If $BD = 8x - 6$ and $BE = 2x + 9$, what is the length of BD and BE ? (6 points)



$$2(2x + 9) = 8x - 6 \quad \checkmark$$

$$4x + 18 = 8x - 6$$

$$24 = 4x$$

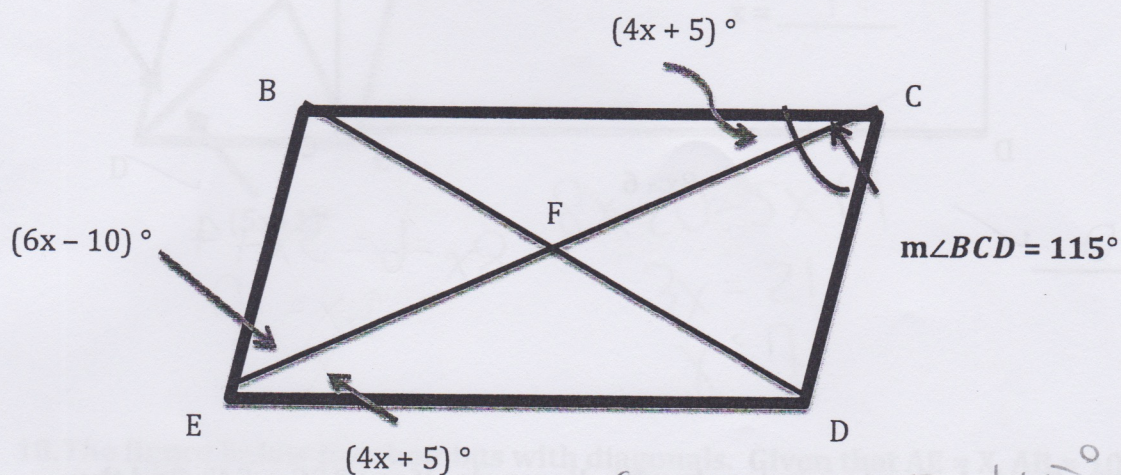
$$6 = x$$

$$BD = \underline{42} \quad \checkmark$$

$$BE = \underline{21} \quad \checkmark$$

13. The following figure is a parallelogram with diagonals. Given the following information, what is the $m\angle BEF$? (6 points)

- $m\angle BCF = (4x + 5)^\circ$
- $m\angle BEF = (6x - 10)^\circ$
- $m\angle DEF = (4x + 5)^\circ$
- $m\angle BCD = 115^\circ$



$m\angle BEF = \underline{62^\circ}$ ✓

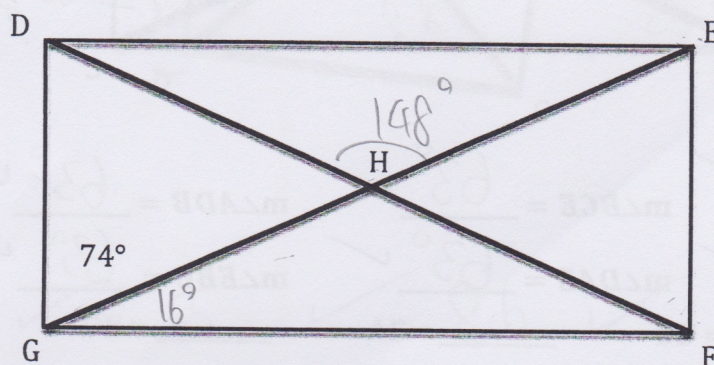
$$6x - 10 + 4x + 5 = 115$$

$$10x - 5 = 115$$

$$10x = 120$$

$$x = 12$$

14. The figure below is a rectangle with diagonals. What are the following angle measures? (12 points)



$m\angle DEF = \underline{90^\circ}$ ✓

$m\angle EGF = \underline{16^\circ}$ ✓

$m\angle DEH = \underline{16^\circ}$ ✓

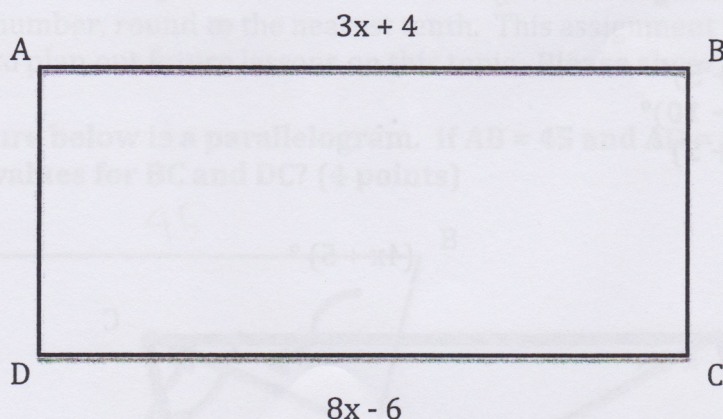
$m\angle HEF = \underline{74^\circ}$ ✓

$m\angle DHE = \underline{148^\circ}$ ✓

$m\angle EHF = \underline{32^\circ}$ ✓

-0

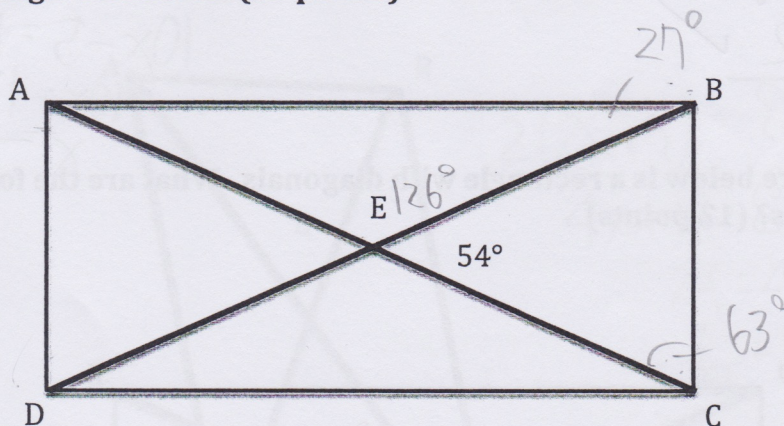
15. The figure below is a rectangle. Given that length $AB = 3x + 4$ and length $DC = 8x - 6$, what is the numerical length of AB ? (4 points)



$AB = \underline{10}$ ✓

$$\begin{aligned} 8x - 6 &= 3x + 4 \\ 5x &= 10 \\ x &= 2 \end{aligned}$$

16. The figure below is a rectangle with diagonals. If $m\angle BEC = 54^\circ$, find the following angle measures: (12 points)



$m\angle AEB = \underline{126^\circ}$ ✓

$m\angle BCE = \underline{63^\circ}$ ✓

$m\angle ADB = \underline{63^\circ}$ ✓

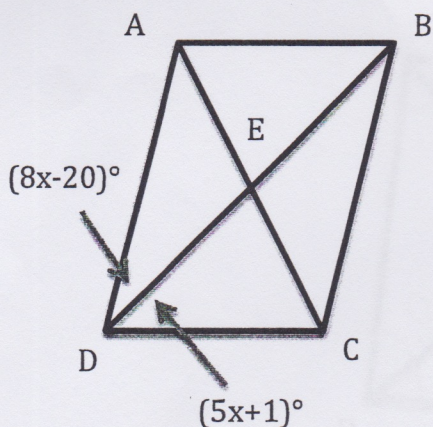
$m\angle ABD = \underline{27^\circ}$ ✓

$m\angle DAE = \underline{63^\circ}$ ✓

$m\angle EBC = \underline{63^\circ}$ ✓

-0

17. The figure below is a rhombus with diagonals. If $m\angle ADE = (8x-20)^\circ$ and the $m\angle CDE = (5x+1)^\circ$, what is the value of x ? (4 points)



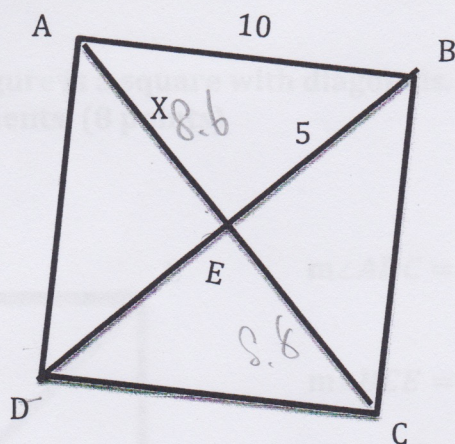
$x = 7$ ✓

$8x-20=5x+1$

$3x=21$

$x=7$

18. The figure below is a rhombus with diagonals. Given that $AE = X$, $AB = 10$, and $BE = 5$, what is the value of the following lengths? (8 points)



$5^2 + 8.6^2 = C^2$
 $25 + 73.96 = C^2$
 $98.96 = C^2$

$5^2 + b^2 = 10^2$
 $25 + b^2 = 100$
 $b^2 = 75$
 $b = 8.6$

✓ $BC = 10$

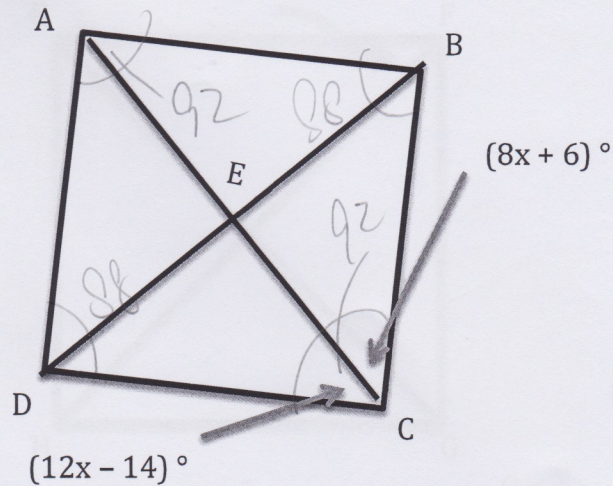
✓ $DE = 5$

✓ $AE = 8.6$

✓ $BD = 10$

①

19. The figure below is a rhombus with diagonals. Given that $m\angle BCE = (8x + 6)^\circ$ and $m\angle DCE = (12x - 14)^\circ$, what is the $m\angle ADC$? (6 points)



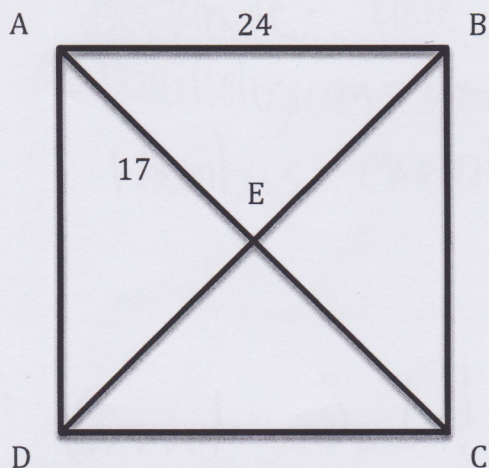
$m\angle ADC = \underline{88}^\circ$

$12x - 14 = 8x + 6$

$4x = 20$

$x = 5$

20. The following figure is a square with diagonals. Find the following lengths and angle measurements. (8 points)



$m\angle ADC = \underline{90}^\circ$

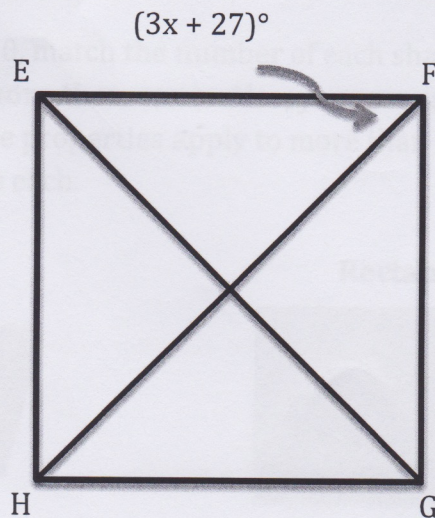
$m\angle BCE = \underline{45}^\circ$

$CE = \underline{17}$

$BC = \underline{24}$



21. The following figure is a square with diagonals. Solve for x. (4 points)



$x = \underline{6}$

$$2(3x + 27) = 90$$

$$6x + 34 = 90 \rightarrow 6x + 54 = 90$$

$$6x = 56$$

$$x = 9.3$$

$$x = 6$$

$$(2 \times 27 = 54)$$

22. Short Answer: Choose two of the four quadrilaterals that we discussed during this unit (parallelogram, rectangle, rhombus, square), and give me **TWO** real-world examples **FOR EACH** shape. Please write in sentence form. (6 points)

Square = window, box

Rectangle = table, number plate

Parallelogram = road line, building

Rhombus = emerald, eye



not really, but the others were really good

Great job!

Please write in sentence form though.



(-1)

Name: _____

Date: _____

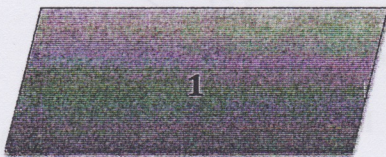
Medium

Post-Test on Quadrilaterals (100 points)

67%

Matching: For problems 1-10, match the number of each shape to the correct properties. You may use each number **more than once**. Also, you **can use multiple numbers for each property** because some properties apply to more than one shape. Each problem in this section is worth 2 points each.

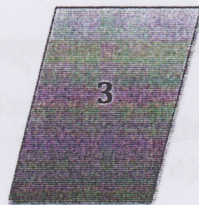
Parallelogram



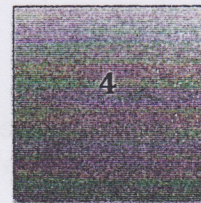
Rectangle



Rhombus



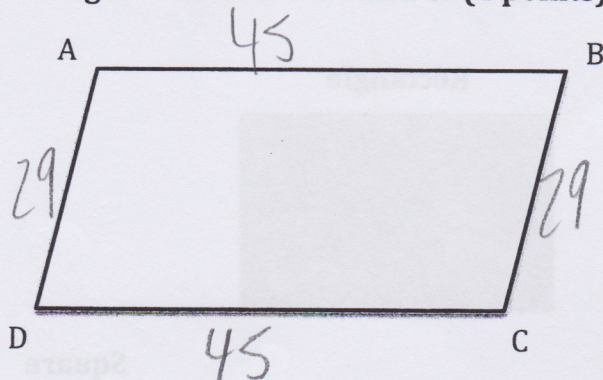
Square



- ✓ 1. 1234 Opposite sides are congruent.
- ✓ 2. 1234 Opposite sides are parallel.
- ✓ 3. 1234 Opposite angles are congruent.
- ✓ 4. 1234 Consecutive angles are supplementary.
- ✓ 5. 1234 Diagonals bisect each other.
- ✓ 6. 2 4 Four right angles.
- 1 7. ~~1234~~ 2, 4 Diagonals are congruent.
- 1/2 8. 4, 3 Four congruent sides.
- 1 9. ~~1234~~ Diagonals are perpendicular.
- 1/2 10. 3, 4 Diagonals bisect opposite angles.

Directions: For problems 11-21, there are various quadrilaterals with given lengths and angles. Solve for the lengths and angles for which you are asked. Keep in mind that these figures are **NOT** necessarily drawn to scale. If a length or an angle that you are solving for is not a whole number, round to the nearest tenth. This assignment will not be graded, but it will be used to plan out future lessons on this topic. **Please show your work.**

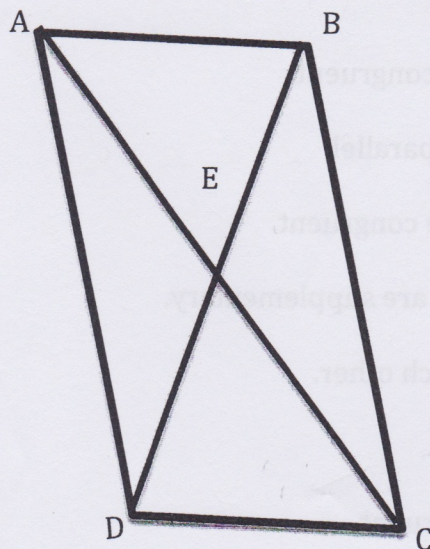
11. The figure below is a parallelogram. If $AB = 45$ and $AD = 29$, what are the length values for BC and DC ? (4 points)



$$BC = \underline{29} \checkmark$$

$$DC = \underline{45} \checkmark$$

12. The figure below is a parallelogram with diagonals. If $BD = 8x-6$ and $BE = 2x+9$, what is the length of BD and BE ? (6 points)



$$8x-6 = 2(2x+9)$$

$$8x-6 = 4x+18$$

$$4x = 24$$

$$x = 6$$

$$BD = 8(6) - 6$$

$$= 48 - 6$$

$$= 42$$

$$BE = 2(6) + 9$$

$$= 21$$

$$8x-6 + 2x+9 = 180$$

$$10x - 3 = 180$$

$$10x = 177$$

$$\frac{10x}{10} = \frac{177}{10}$$

$$x = 17.7$$

$$BD = \underline{135.6} - 2$$

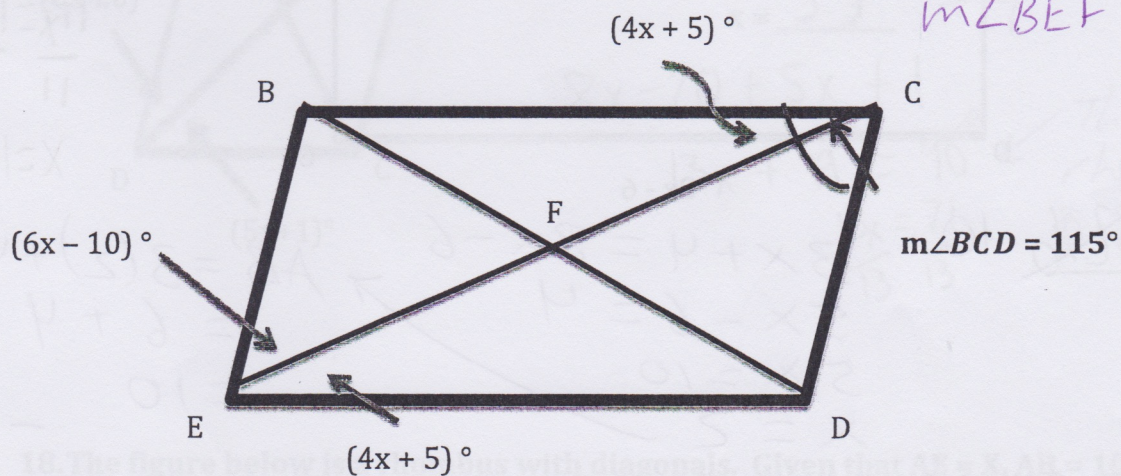
$$BE = \underline{44.4} - 2$$

13. The following figure is a parallelogram with diagonals. Given the following information, what is the $m\angle BEF$? (6 points)

- $m\angle BCF = (4x + 5)^\circ$
- $m\angle BEF = (6x - 10)^\circ$
- $m\angle DEF = (4x + 5)^\circ$
- $m\angle BCD = 115^\circ$

$$\begin{aligned} 6x - 10 + 4x + 5 &= 115 \\ 10x - 5 &= 115 \\ 10x &= 120 \\ x &= 12 \end{aligned}$$

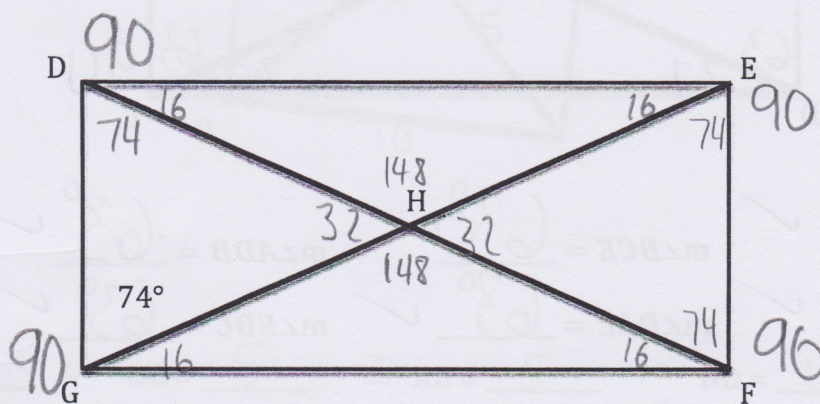
$$\begin{aligned} m\angle BEF &= 6(12) - 10 \\ &= 62^\circ \end{aligned}$$



$$m\angle BEF = \underline{62}$$

-6

14. The figure below is a rectangle with diagonals. What are the following angle measures? (12 points)



$$m\angle DEF = \underline{90^\circ} \quad \checkmark$$

$$m\angle EGF = \underline{16^\circ} \quad \checkmark$$

$$m\angle DEH = \underline{16^\circ} \quad \checkmark$$

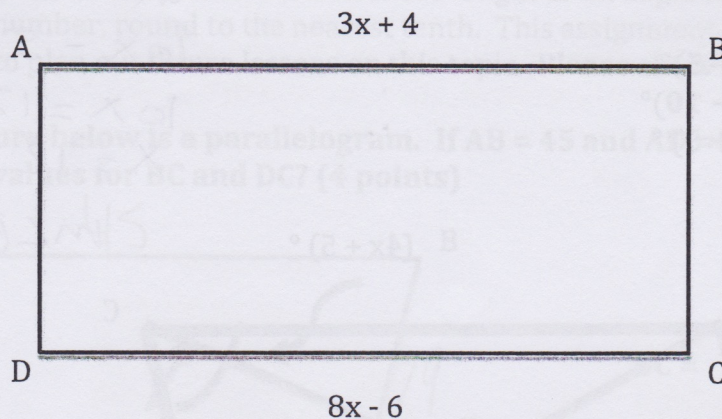
$$m\angle HEF = \underline{74^\circ} \quad \checkmark$$

$$m\angle DHE = \underline{148^\circ} \quad \checkmark$$

$$m\angle EHF = \underline{32^\circ} \quad \checkmark$$

-6

15. The figure below is a rectangle. Given that length $AB = 3x + 4$ and length $DC = 8x - 6$, what is the numerical length of AB ? (4 points)



These are side lengths
not angles so they
are not supplementary

$$3x + 4 + 8x - 6 = 180$$

$$11x + 2 = 180 - 2$$

$$\frac{11x}{11} = \frac{178}{11}$$

$$x = 16.2$$

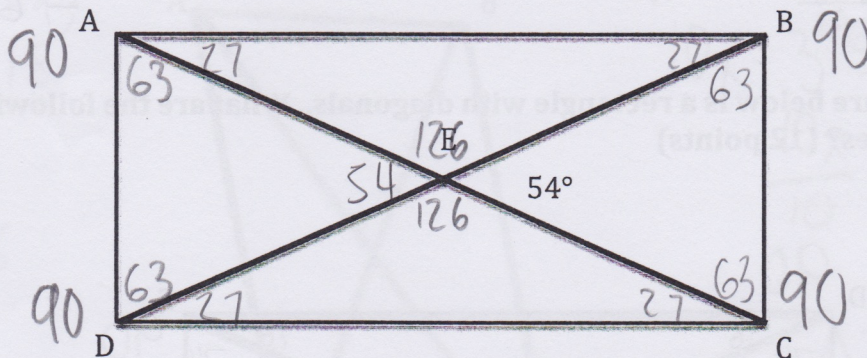
$AB = \underline{52.6}$ 10

$$\begin{aligned} 3x + 4 &= 8x - 6 \\ 5x - 6 &= 4 \\ 5x &= 10 \\ x &= 2 \end{aligned}$$

$$\begin{aligned} AB &= 3(2) + 4 \\ &= 6 + 4 \\ &= 10 \end{aligned}$$

-4

16. The figure below is a rectangle with diagonals. If $m\angle BEC = 54^\circ$, find the following angle measures: (12 points)



$m\angle AEB = \underline{126^\circ}$ ✓

$m\angle BCE = \underline{63^\circ}$ ✓

$m\angle ADB = \underline{63^\circ}$ ✓

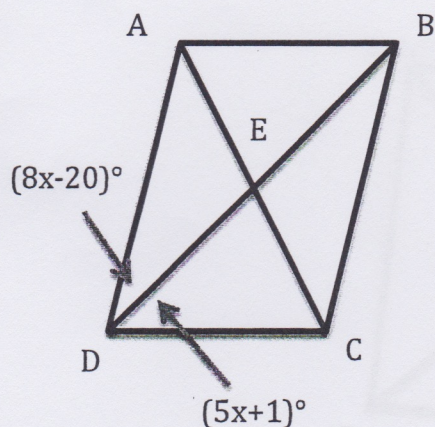
$m\angle ABD = \underline{27^\circ}$ ✓

$m\angle DAE = \underline{63^\circ}$ ✓

$m\angle EBC = \underline{63^\circ}$ ✓

(-4)

17. The figure below is a rhombus with diagonals. If $m\angle ADE = (8x-20)^\circ$ and the $m\angle CDE = (5x+1)^\circ$, what is the value of x ? (4 points)



$$x = \underline{5.5} - 4$$

$$8x - 20 + 5x + 1$$

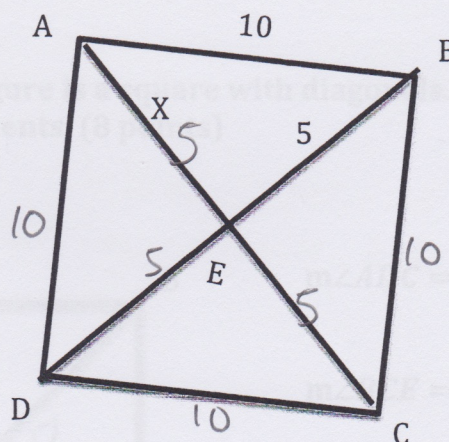
$$13x + 19 = 90$$

$$13x = 71$$

$$\frac{71}{13}$$

This is a rhombus not a square.

18. The figure below is a rhombus with diagonals. Given that $AE = X$, $AB = 10$, and $BE = 5$, what is the value of the following lengths? (8 points)



✓ $BC = \underline{10}$ ✓ $DE = \underline{5}$ ✓ $AE = \underline{5}$ ✓ $BD = \underline{10}$

$$X^2 + 5^2 = 10^2$$

$$X^2 = 100 - 25$$

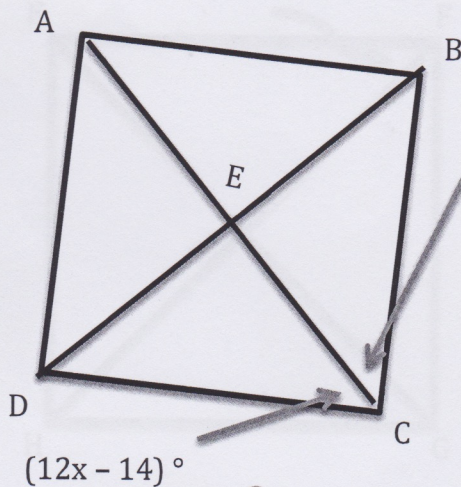
$$X^2 = 75$$

$$X = 8.66$$

$$AE = 8.7$$

(-6)

19. The figure below is a rhombus with diagonals. Given that $m\angle BCE = (8x + 6)^\circ$ and $m\angle DCE = (12x - 14)^\circ$, what is the $m\angle ADC$? (6 points)



$$12x - 14 = 8x + 6$$

$$x = 5$$

$$m\angle BCE = 8(5) + 6$$

$$= 46^\circ$$

$$m\angle ADC = 180^\circ - 46^\circ - 46^\circ$$

$$= 88^\circ$$

$$m\angle ADC = \underline{88^\circ}$$

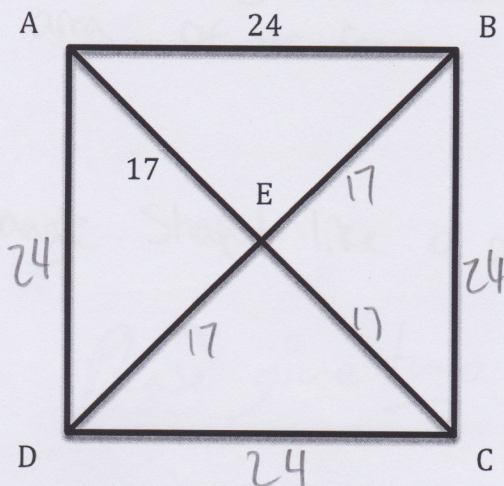
This doesn't work in a rhombus

$$8x + 6 + 12x - 14 = 90$$

$$20x = 98$$

$$\frac{20x}{20} = \frac{98}{20}$$

20. The following figure is a square with diagonals. Find the following lengths and angle measurements. (8 points)



$$m\angle ADC = \underline{90^\circ}$$

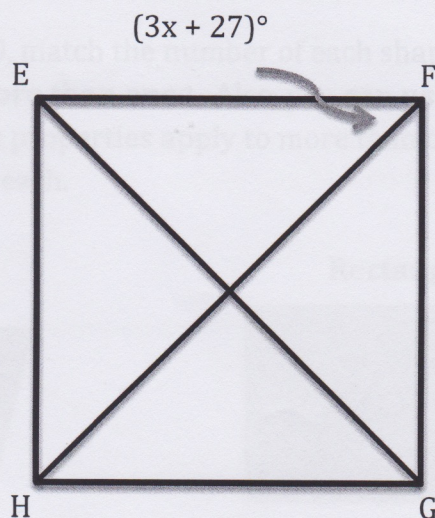
$$m\angle BCE = \underline{45^\circ}$$

$$CE = \underline{17}$$

$$BC = \underline{24}$$

-6

21. The following figure is a square with diagonals. Solve for x. (4 points)



$$\begin{aligned}
 3x + 27 + 3x + 27 &= 90 \\
 6x + 54 &= 90 \\
 6x &= 36 \\
 \underline{6} \quad 6 & \\
 x &= 6
 \end{aligned}$$

x = 6

22. Short Answer: Choose two of the four quadrilaterals that we discussed during this unit (parallelogram, rectangle, rhombus, square), and give me TWO real-world examples FOR EACH shape. Please write in sentence form. (6 points)

#21/Square. looks + shaped like a floor tile, measurements are crucial to finding out how many tiles will be needed to cover the area of the room.

#16/Rectangle Shaped like a pool, could be used to find volume.

Please give two examples for each shape

$$\begin{array}{r}
 -\$2
 \end{array}$$

$$\begin{array}{r}
 +3 \\
 +1 \\
 \hline
 +4
 \end{array}$$

Name: _____

Date: 3/29/16

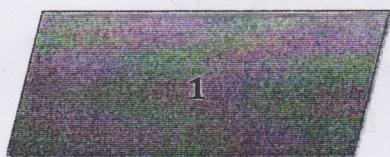
Low

Post-Test on Quadrilaterals (100 points)

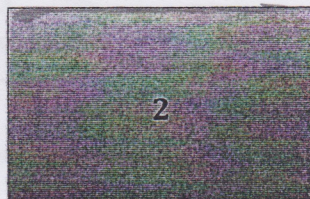
37%

Matching: For problems 1-10, match the number of each shape to the correct properties. You may use each number **more than once**. Also, you **can use multiple numbers for each property** because some properties apply to more than one shape. Each problem in this section is worth 2 points each.

Parallelogram



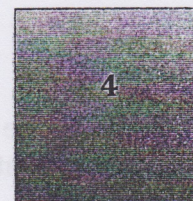
Rectangle



Rhombus



Square

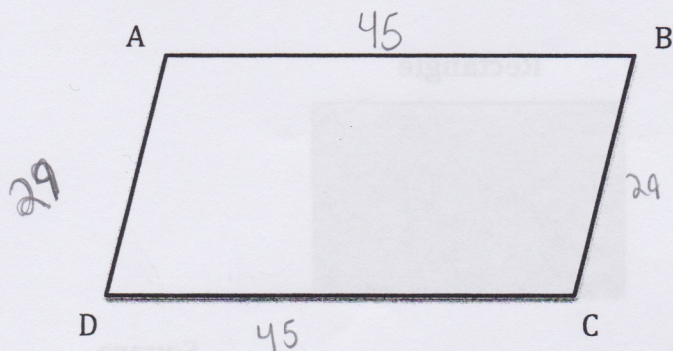


- ✓ 1. 1, 2, 3, 4 Opposite sides are congruent.
- ✓ 2. 1, 2, 3, 4 Opposite sides are parallel.
- 1 3. 2, 4, 3, 1 Opposite angles are congruent.
- 1 4. 1, 3, 2, 4 Consecutive angles are supplementary.
- ✓ 5. 1, 3, 2, 4 Diagonals bisect each other.
- ✓ 6. 2, 4 Four right angles.
- 2 7. 1, 3, 2, 4 Diagonals are congruent.
- 1 8. 1, 3, 4 Four congruent sides.
- 1 9. 1, 3, 4 Diagonals are perpendicular.
- 1 10. 1, 3, 4 Diagonals bisect opposite angles.

(-7)

Directions: For problems 11-21, there are various quadrilaterals with given lengths and angles. Solve for the lengths and angles for which you are asked. Keep in mind that these figures are **NOT** necessarily drawn to scale. If a length or an angle that you are solving for is not a whole number, round to the nearest tenth. This assignment will not be graded, but it will be used to plan out future lessons on this topic. **Please show your work.**

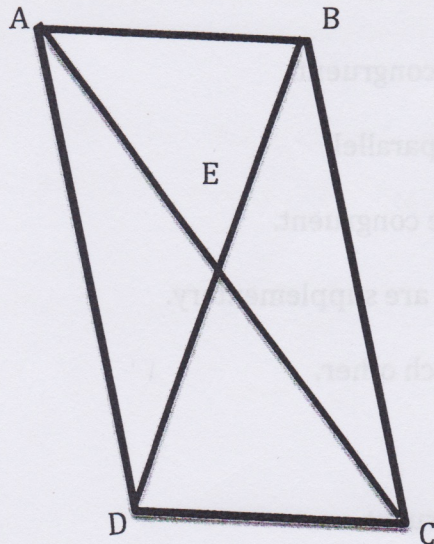
11. The figure below is a parallelogram. If $AB = 45$ and $AD = 29$, what are the length values for BC and DC ? (4 points)



$$BC = \underline{29}$$

$$DC = \underline{45}$$

12. The figure below is a parallelogram with diagonals. If $BD = 8x-6$ and $BE = 2x+9$, what is the length of BD and BE ? (6 points)



$$\begin{aligned} 8x-6 &= 2(2x+9) \\ 8x-6 &= 4x+18 \\ 4x &= 24 \\ BD &= 8(6)-6 \\ &= 48-6 \\ &= 42 \\ BE &= 2(6)+9 \\ &= 21 \end{aligned}$$

~~$$\begin{aligned} 8x-6 &= 2x+9 \\ 6x-6 &= 9 \\ 6x &= 15 \\ x &= 2.5 \end{aligned}$$~~

~~$$\begin{aligned} 8x-6 &= 18 \\ 8x &= 24 \\ x &= 3 \end{aligned}$$~~

$$BD = \underline{29.2} - 2$$

$$BE = \underline{29.2} - 2$$

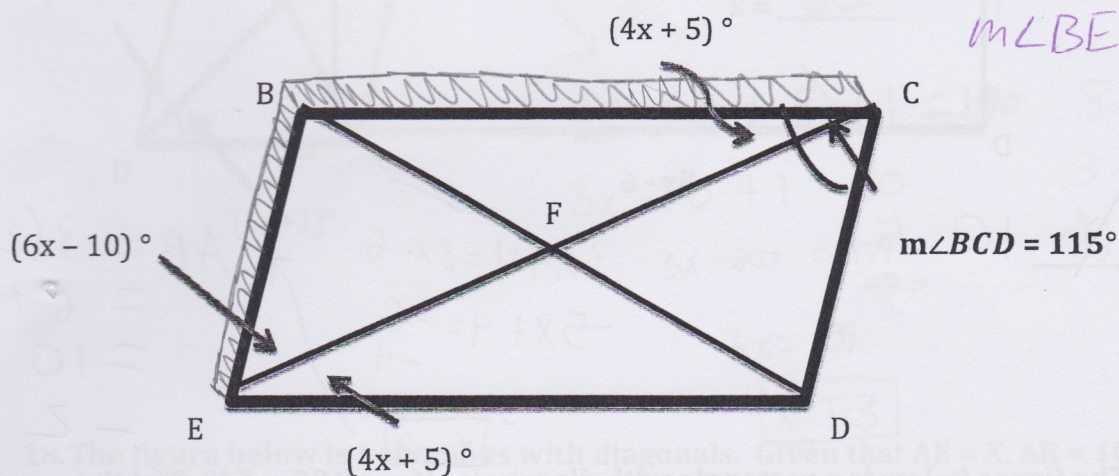
$$\begin{aligned} 8x-6 + 2x+9 &= 180 \\ 6x-6 + 9 &= 180 \\ 6x-6 &= 181 \\ 6x &= 187 \\ x &= \underline{29.2} \end{aligned}$$

2

-6

13. The following figure is a parallelogram with diagonals. Given the following information, what is the $m\angle BEF$? (6 points)

- $m\angle BCF = (4x + 5)^\circ$
- $m\angle BEF = (6x - 10)^\circ$
- $m\angle DEF = (4x + 5)^\circ$
- $m\angle BCD = 115^\circ$



$$6x - 10 + 4x + 5 = 115$$

$$10x - 5 = 115$$

$$10x = 120$$

$$x = 12$$

$$m\angle BEF = 6(12) - 10 = 62^\circ$$

$$m\angle BEF = \underline{159.8}$$

$$6x - 10 = 180$$

$$-10$$

$$6x = 170$$

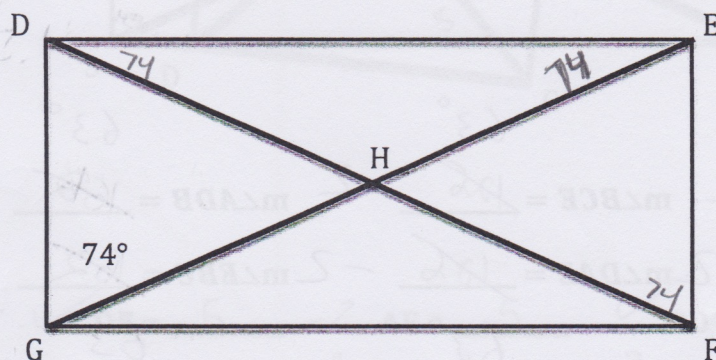
$$\frac{6x}{6} = \frac{170}{6}$$

$$x = 28.3$$

$$6(28.3) - 10 = 159.8$$

-6

14. The figure below is a rectangle with diagonals. What are the following angle measures? (12 points)



$$m\angle DEF = \underline{222} - 2 \quad m\angle EGF = \underline{222} - 2$$

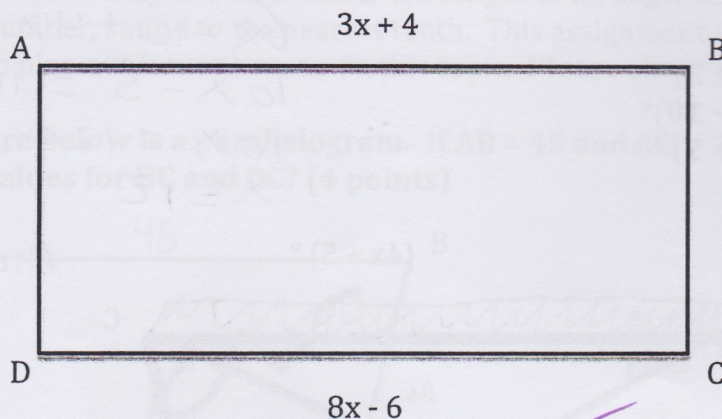
$$m\angle HEF = \underline{148} - 2 \quad m\angle DHE = \underline{148} \checkmark$$

$$m\angle DEH = \underline{148} - 2$$

$$m\angle EHF = \underline{148} - 2$$

-16

15. The figure below is a rectangle. Given that length $AB = 3x + 4$ and length $DC = 8x - 6$, what is the numerical length of AB ? (4 points)

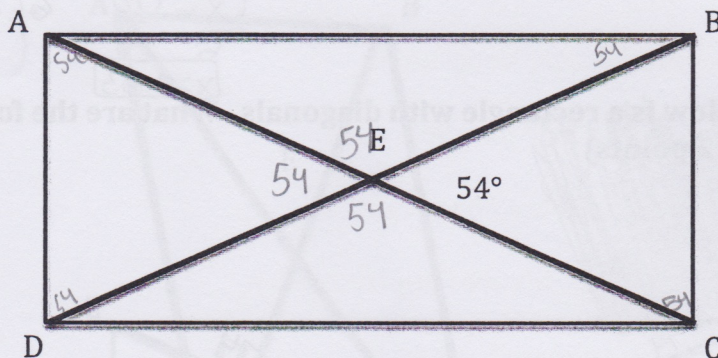


$AB =$ ~~2~~ 10

$$\begin{aligned} 3x + 4 &= 8x - 6 \\ -5x + 4 &= -6 \\ -5x &= -10 \\ \boxed{x} &= 2 \end{aligned}$$

$$\begin{aligned} AB &= 3(2) + 4 \\ &= 6 + 4 \\ &= 10 \end{aligned}$$

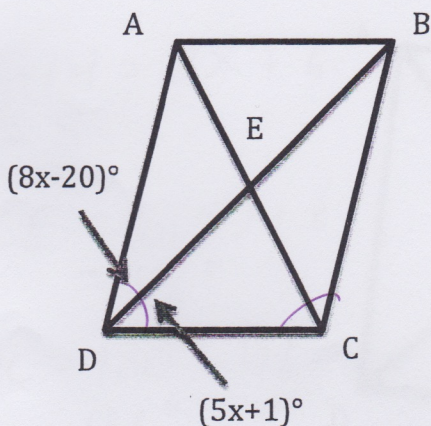
16. The figure below is a rectangle with diagonals. If $m\angle BEC = 54^\circ$, find the following angle measures: (12 points)



$$\begin{aligned} m\angle AEB &= \frac{126^\circ}{2} = 63^\circ & m\angle BCE &= \frac{126^\circ}{2} = 63^\circ & m\angle ADB &= \frac{126^\circ}{2} = 63^\circ \\ m\angle ABD &= \frac{126^\circ}{2} = 63^\circ & m\angle DAE &= \frac{126^\circ}{2} = 63^\circ & m\angle EBC &= \frac{126^\circ}{2} = 63^\circ \end{aligned}$$

-14

17. The figure below is a rhombus with diagonals. If $m\angle ADE = (8x-20)^\circ$ and the $m\angle CDE = (5x+1)^\circ$, what is the value of x ? (4 points)



These angles are congruent not supplementary.
consecutive angles are supplementary.
 $x = 53 - 4$ (marked on diagram)

$$8x - 20 \neq 5x + 1 = 180$$

$$8x - 20 = 5x + 1$$

$$3x = 21$$

$$x = 7$$

$$3x - 20 + 1 = 180$$

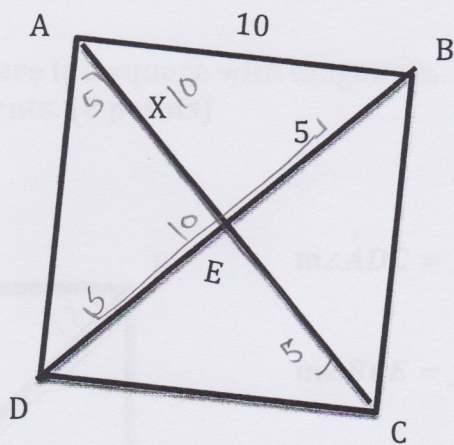
$$3x - 20 = 179$$

$$3x = 199$$

$$3x = 159$$

$$x = 53$$

18. The figure below is a rhombus with diagonals. Given that $AE = x$, $AB = 10$, and $BE = 5$, what is the value of the following lengths? (8 points)



✓ $BC = 10$ ✓ $DE = 5$ ✓ $AE = 5$ ✓ $BD = 10$

$$x^2 + 5^2 = 10^2$$

$$x^2 = 100 - 25$$

$$x^2 = 75$$

$$x = 8.66$$

$$AE = 8.7$$

46

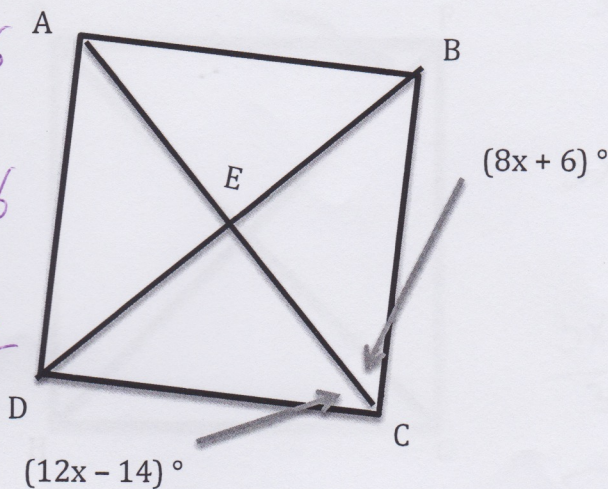
19. The figure below is a rhombus with diagonals. Given that $m\angle BCE = (8x + 6)^\circ$ and $m\angle DCE = (12x - 14)^\circ$, what is the $m\angle ADC$? (6 points)

$$12x - 14 = 8x + 6$$

$$x = 5$$

$$m\angle BCE = 8(5) + 6 = 46^\circ$$

$$m\angle ADC = 180^\circ - 46^\circ - 46^\circ = 88^\circ$$



$$m\angle ADC = \cancel{40} 88^\circ$$

$$12x - 14 + 8x + 6 = 180$$

$$4x - 14 + 6 = 180$$

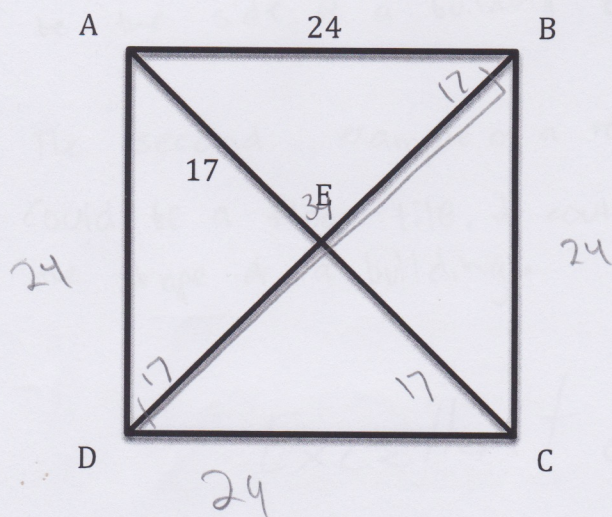
$$4x - 14 = 174$$

$$\frac{4x}{4} = \frac{188}{4}$$

$$x = 47$$

-6

20. The following figure is a square with diagonals. Find the following lengths and angle measurements. (8 points)



$$m\angle ADC = \frac{90^\circ}{2} = 45^\circ$$

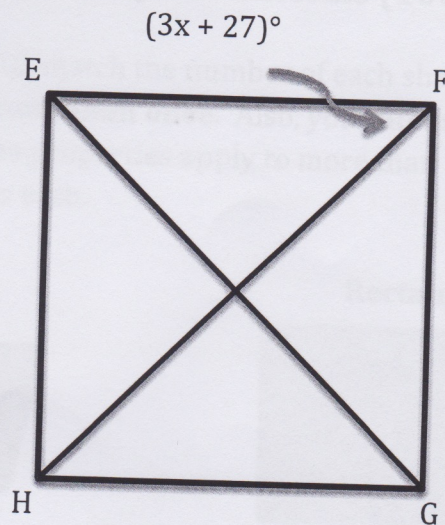
$$m\angle BCE = \frac{90^\circ}{2} = 45^\circ$$

$$CE = 17$$

$$BC = 24$$

-10

21. The following figure is a square with diagonals. Solve for x. (4 points)



$$3x + 27 = 45$$

$$x = 6$$

$$3x + 27 = 180$$

$$-27$$

$$\frac{3x}{3} = \frac{153}{3}$$

$$x = 51$$

$$x = \underline{51^\circ} \quad 6$$

-4

22. Short Answer: Choose two of the four quadrilaterals that we discussed during this unit (parallelogram, rectangle, rhombus, square), and give me TWO real-world examples FOR EACH shape. Please write in sentence form. (6 points)

One real world example of a quadrilateral is a (rectangle) this could be the side of a building or even a table or a whiteboard in school.

The second example of a real world quadrilateral is a (square) this could be a floor tile, it could even be the shape of a house it can be the shape of a building.

+6

Excellent!

-4