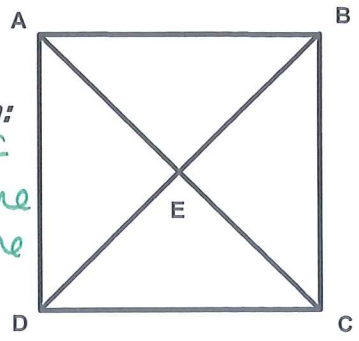
Name: Key

Practice: Rectangles, Squares, and Rhombi Worksheet A

Use square ABCD and the given information to find each value. Write the property you used for EACH problem.



1. If $m\angle AEB = 3x$, find x.

Geometry: $\angle AEB = 90°$; $3x = 90$; $x = 30$

Justification: diags of a square are ⊥

2. If $m\angle BAC = 9x$, find x.

Geometry: $\angle BAC = 45$; $9x = 45$; $x = 5$

Justification: diags of a square bisect the 90° ∠s

3. If $AB = 2x + 4$ and $CD = 3x - 5$, find BC.

Geometry: $AB \cong CD$; $2x + 4 = 3x - 5$; $4 = x - 5$; $9 = x$

Justification: all 4 sides of a square are ≅

4. If $m\angle BAC = 3x$, find x.

Geometry: $\angle BAC = 45°$; $\frac{3x}{3} = \frac{45}{3}$; $x = 15$

Justification: diags of a square bisect the 90° ∠s

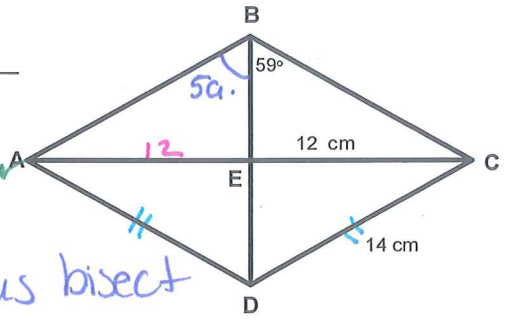
5. If AB = 7x – 2 and BC = 4x + 3, find x.

Geometry: $AB = BC$; $7x - 2 = 4x + 3$; $3x - 2 = 3$; $3x = 5$

Justification: def of square (all sides ≅)

$x = \frac{5}{3} \approx 1.67$

Use rhombus ABCD and the given information to find each measure. Write the property you used for EACH problem.



6. $m\angle BCE$ = 31° because ∆ sum

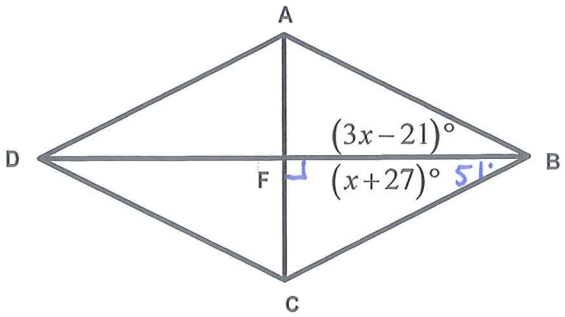
7. $m\angle BEC$ = 90° because diags of Rhombus are ⊥ to each other

8. AC = 24cm because segment addition

9. $m\angle ABD$ = 59° because diags of a Rhombus bisect the angles.

10. AD = 14cm because def of Rhombus 4 ≅ sides.

Given Rhombus ABCD, find x, <FBC, <BCF, and <ABC.



11. Find x. $3x - 21 = x + 27$; $2x - 21 = 27$; $2x = 48$; $x = 24$

Find <FBC: $24 + 27 = 51$; $\angle FBC = 51°$

Find <BCF: $90 + 51 + \angle BCF = 180$; $\angle BCF = 39°$

Find <ABC: $\angle ABC = 2(51)$; $\angle ABC = 102°$

12. **Given Rectangle ABCD, find the following measures. Write the property used for each problem.** 90-38

A. $m\angle DAH =$ 52° because: def of Rect. 4 90°∠s.

B. $\overline{HB} =$ 10 because: diags of Rect. bisect each other

C. $m\angle ABD =$ 38° because: base ∠s of Isosc. △ are ≅

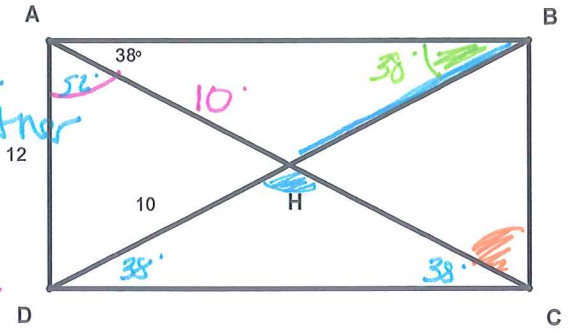
D. $\overline{AC} =$ 20 because: diags of a Rect are ≅

E. $m\angle DHC =$ 104° because: Skip ∠sum

F. $\overline{BC} =$ 12 because: op. sides of a Rectangle are ≅

H. $m\angle HCB =$ 52° because: ∥ lines form ≅ alt. int ∠s.

I. $m\angle ADC =$ 90° because: def of Rectangle. 4 Right ∠s.



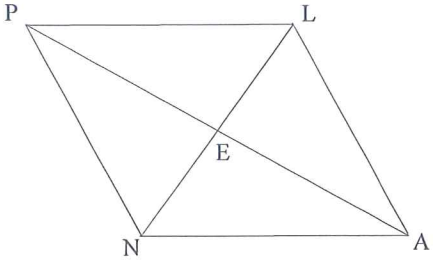
13. **Given rhombus PLAN. Answer each of the following:**

a. What type of triangle is △PLA? Isosceles.

b. What type of triangle is △PEN? Right

c. Is △PEN ≅ △AEL? yes.

d. Is it true that $\overline{PA} \cong \overline{NL}$? Explain. NO.



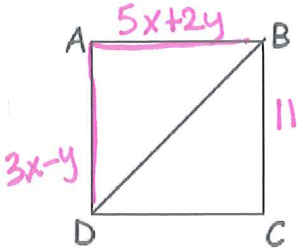
14. Always, Sometimes, Never:

a. Always All parallelograms are trapezoids. (all paras have one Pair of op. sides ∥)

b. Always All squares are parallelograms.

c. Sometimes All quadrilaterals are parallelograms.

15. Challenge Question: ABCD is a square. AB = 5x +2y, AD = 3x – y, and BC = 11. Find x and y.



$3x - y = 11$

$3x - 11 = y$

$3(3) - y = 11$

$9 - y = 11$

$-9 \quad -9$

$-y = 2$

$y = -2$

$5x + 2(3x - 11) = 11$

$5x + 6x - 22 = 11$

$+22 \quad +22$

$11x = 33$

$x = 3$

Name: _____

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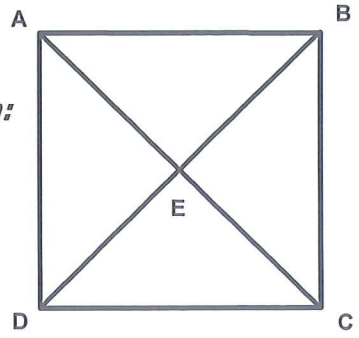

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Geometry: ***Justification:***

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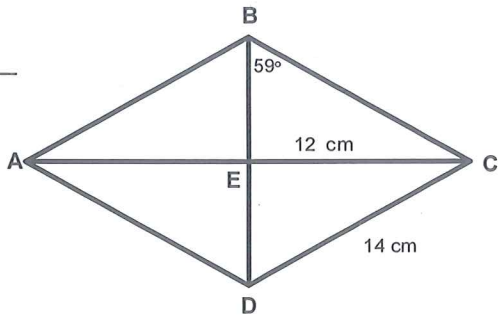
Use rhombus ABCD and the given information to find each measure. Write the property you used for EACH problem.



6. $m\angle BCE$ = _____ because _____

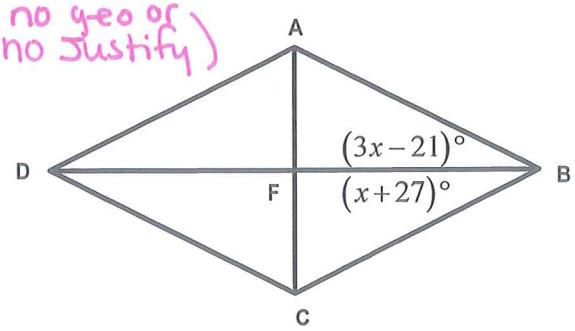
7. $m\angle BEC$ = _____ because _____

8. AC = _____ because _____

9. $m\angle ABD$ = _____ because _____

10. AD = _____ because _____

Given Rhombus ABCD, find x, <FBC, <BCF, and <ABC. no geo or (no justify)



11. Find x.

Find <FBC:

Find <BCF:

Find <ABC:

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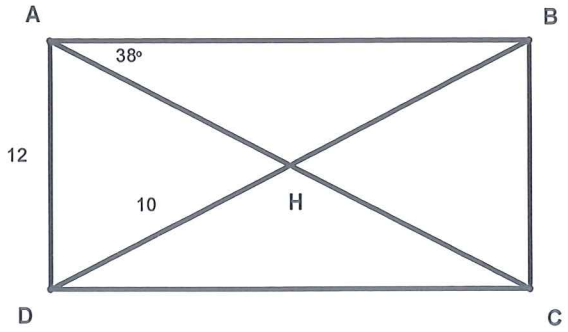


A. $m\angle DAH =$ _____ B. $\overline{HB} =$ _____

because: _____ because: _____

C. $m\angle ABD =$ _____ D. $\overline{AC} =$ _____

because: _____ because: _____

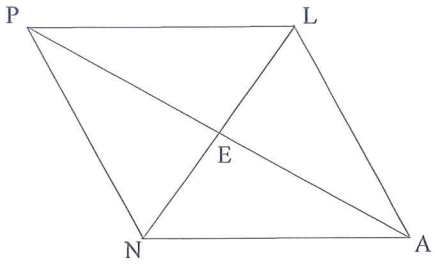
E. $m\angle DHC =$ _____ F. $\overline{BC} =$ _____

because: _____ because: _____

H. $m\angle HCB =$ _____ I. $m\angle ADC =$ _____

because: _____ because: _____

13. **Given rhombus PLAN. Answer each of the following:**



a. What type of triangle is ΔPLA?

b. What type of triangle is ΔPEN?

c. Is ΔPEN ≅ ΔAEL?

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