Name: Key Date: _____ Block: _____

Parallelograms Extra Practice

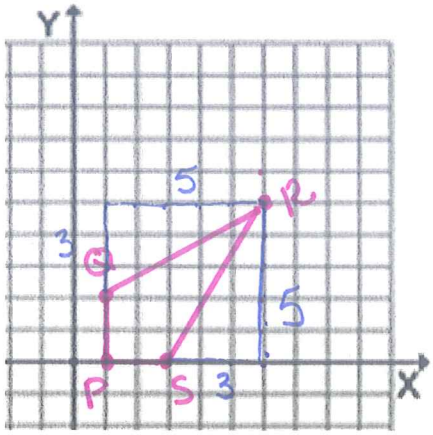
Topic/Assignment	I CAN statement	Turned in?
Properties of Parallelograms	1) I can find the missing angle measurements	Yes No
Properties of Parallelograms	1) I can find angle and side measures in parallelograms.	Yes No
Properties of Parallelograms	1) I can use properties to prove quadrilaterals are parallelograms.	Yes No

Properties of Parallelograms

Objective: **To use relationships to find sides and angles in parallelograms.**

1: Points *P, Q, R,* and *S* are the vertices of a quadrilateral. Determine if the quadrilateral is a parallelogram. Show all work.

a) $P(1,0), Q(1,2), R(6,5), S(3,0)$



Slope PS = $\frac{0}{2} = 0$

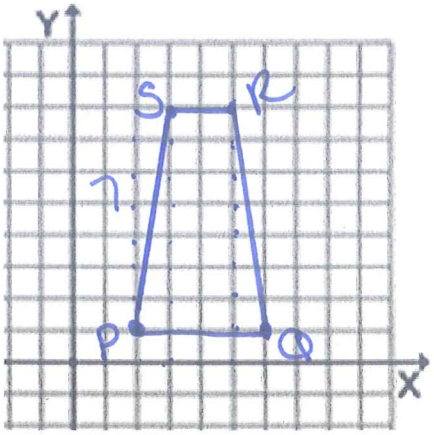
Slope PQ = $\frac{2}{0}$ = undefined

Slope QR = $\frac{3}{5}$

Slope SR = $\frac{5}{3}$

Not a parallelogram because op. sides are not //.

b) $P(2,1), Q(6,1), R(5,8), S(3,8)$



Slope PQ = $\frac{0}{4} = 0$

Slope SR = $\frac{0}{2} = 0$ > //

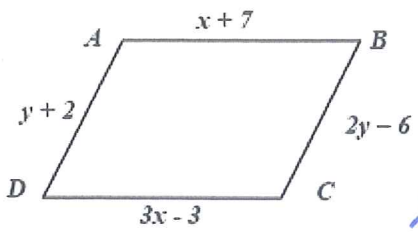
Slope PS = $\frac{7}{1} = 7$

Slope RQ = $-\frac{7}{1} = -7$ > not //

∴ not a parallelogram because only one pair of op. sides are parallel.

Name: _____ Date: _____ Block: _____

2. ABCD is a parallelogram. Find x, y and the perimeter. Show your geometry and justifications for all steps.



Find x

$AB = DC$ op. sides of a para are $\cong$

$x + 7 = 3x - 3$

$7 = 2x - 3$

$10 = 2x$

$5 = x$

same Find y

$BC = AD$

$2y - 6 = y + 2$

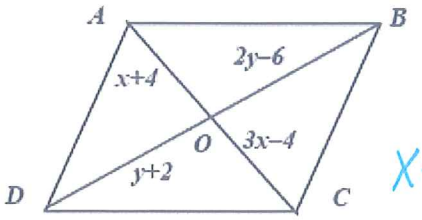
$y - 6 = 2$

$y = 8$

Perimeter $= 5 + 7 + 2(8) - 6 + 3(5) - 3 + 8 + 2$

Perimeter $= 44$ units

3. ABCD is a parallelogram. Find x, y, BD and AC. Show your geometry and justifications for all steps.



Find x diags of a para bisect each other

$AO \cong OC$

$x + 4 = 3x - 4$

$4 = 2x - 4$

$8 = 2x$

$4 = x$

Find y diags of a Para bisect each other

$DO \cong BO$

$y + 2 = 2y - 6$

$2 = 2y - 6$

$\frac{8}{2} = \frac{2y}{2}$

$4 = y$

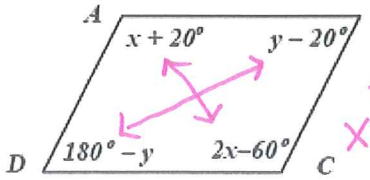
$BD = 4 + 2 + 2(4) - 6$

$BD = 8$ units

$AC = 4 + 4 + 3(4) - 4$

$AC = 16$ units

4. ABCD is a parallelogram. Find x, y and <C. Show your geometry and justifications for all steps.



Find x op. <s of a para are $\cong$

$\angle A = \angle C$

$x + 20 = 2x - 60$

$20 = x - 60$

$80 = x$

Find y op. <s of a Parallelogram are $\cong$

$\angle B \cong \angle D$

$y - 20 = 180 - y$

$2y - 20 = 180$

$2y = 200$

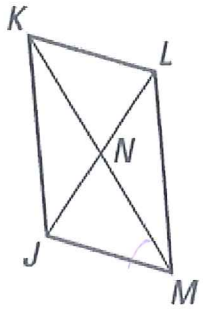
$y = 100$

$\angle C = 2(100) - 60$

$\angle C = 140°$

Name: _____ Date: _____ Block: _____

5. Complete the statement and justify your reasoning.



a. JK = LM because op. sides of a para are ≅

b. MN = NK because diags of a para bisect eachother

c. <MLK= <KJM because op. <s of a para are ≅

d. <JKL= < LMJ because op. <s of a Para are ≅

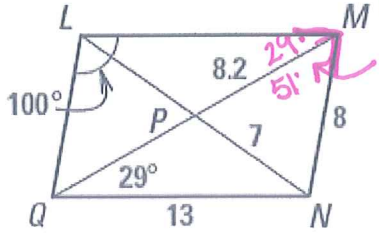
e. JN= LN because diags of a para bisect each other

f. KL= JM because op. sides of a para are ≅

g. <MNL= <KNJ because vertical <s are ≅

h. <MKL = <KMJ because // lines form ≅ alt. int <s.

6. **LMNQ is a parallelogram. Find the measures and explain your reasoning.**



a. LM= 13
because:
1. M=QN
2. op. sides of a Para. are ≅

b. LP= 7
because:
diags of a para bisect each other

c. LQ= 8
because:
op. sides of a Para are ≅

d. QP = 8.2
because:
diags of a Para bisect each other.

e. <LMN = 80°
because: 29+51°
con. int. <s of Paras are suppl.

f. <NQL = 80°
because:
con. int. <s of a para are Suppl.

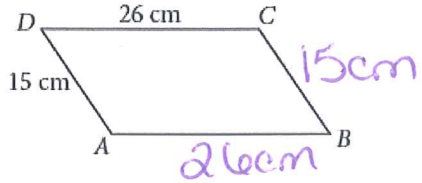
g. <MNQ = 100°
because:
op. <s of a Para are ≅

h. <LMQ = 29°
because:
// lines form ≅ alt int. <s.

Name: Key Date: _____ Block: _____

Directions: ABCD is a parallelogram. Show your geometry and what property or properties you used to help you answer the question.

7. Perimeter $ABCD$ = 82cm



15cm

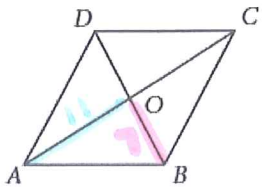
26cm

AD = CB opp. sides of a para are ≅

CD = AB

8. $AO = 11$, and $BO = 7$.

AC = 22, BD = 14



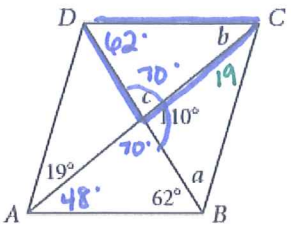
AC = 2·AO

BD = 2·OB

diags of a para bisect each other

9. a = 51°, b = 48°,

c = 70°



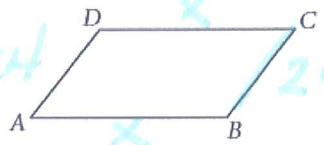
Find c: c = 70° linear pairs are suppl.

Find b: b = 48° // lines form ≅ alt. int. ∠s AND Δ sum.

Find a a = 51° // lines form ≅ alt. int. ∠s and Δ sum.

10. Perimeter $ABCD$ = 119, and

BC = 24. AB = _____



opp. sides of a para are ≅

AD = CB

DC = AB

P = 24 + x + 24 + x

CLT

P = 2x + 48

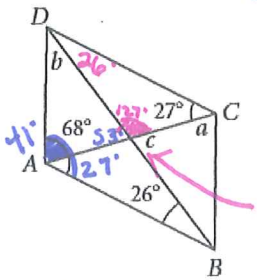
119 = 2x + 48

71 = 2x

AB = 35.5

11. a = 41°, b = 86°,

c = 53°

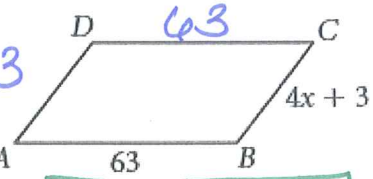


Find a // lines form ≅ alt int ∠s. a = 41°

Find b Δ sum. b = 86°

Find c: linear pairs are suppl. 127 + c = 180 c = 53°

12. Perimeter ABCD = 16x -12. Find AD.



4x+3

P = 4x+3 + 63 + 4x+3 + 63

16x − 12 = 8x + 132

−8x −8x

8x − 12 = 132

8x = 144

x = 18

AD = 75

AD = 4(18) + 3

Name: _____ Date: _____ Block: _____

Parallelograms Extra Practice

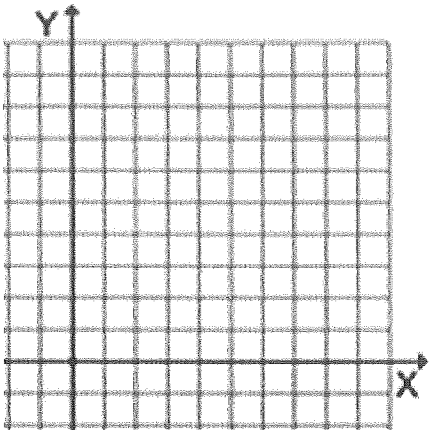
Topic/Assignment	I CAN statement	Turned in?
Properties of Parallelograms	1) I can find the missing angle measurements	Yes No
Properties of Parallelograms	1) I can find angle and side measures in parallelograms.	Yes No
Properties of Parallelograms	1) I can use properties to prove quadrilaterals are parallelograms.	Yes No

Properties of Parallelograms

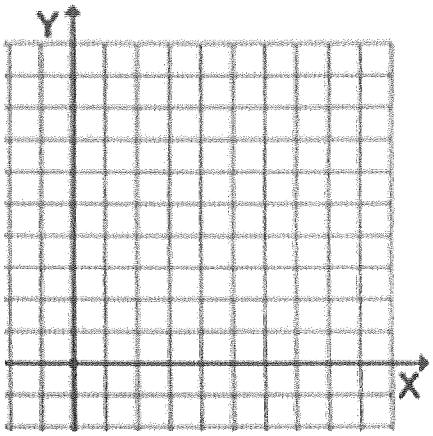
Objective: **To use relationships to find sides and angles in parallelograms.**

1: Points *P, Q, R,* and *S* are the vertices of a quadrilateral. Determine if the quadrilateral is a parallelogram. Show all work.

a) $P(1,0), Q(1,2), R(6,5), S(3,0)$

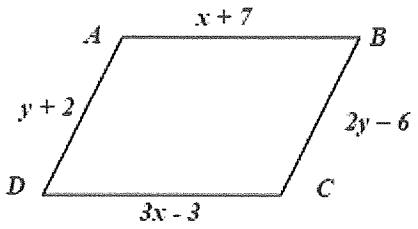


b) $P(2,1), Q(6,1), R(5,8), S(3,8)$

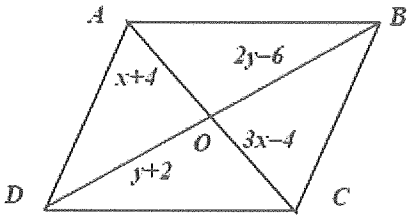


Name: _____ Date: _____ Block: _____

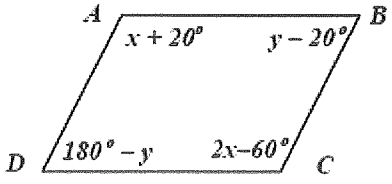
2. ABCD is a parallelogram. Find x, y and the perimeter. Show your geometry and justifications for all steps.



3. ABCD is a parallelogram. Find x, y, BD and AC. Show your geometry and justifications for all steps.

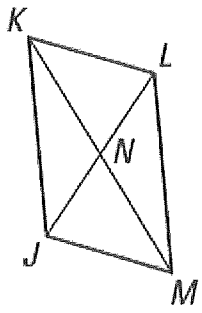


4. ABCD is a parallelogram. Find x, y and <C. Show your geometry and justifications for all steps.



Name: _____ Date: _____ Block: _____

5. Complete the statement and justify your reasoning.



a. JK = _____because _____

b. MN = _____ because _____

c. <MLK= _____ because _____

d. <JKL= _____ because _____

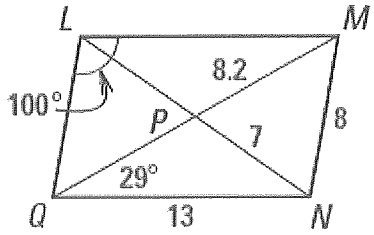
e. JN= _____ because _____

f. KL= _____ because _____

g. <MNL= _____ because _____

h. <MKL = _____ because _____

6. **LMNQ is a parallelogram. Find the measures and explain your reasoning.**



a. LM= _____
because:

b. LP= _____
because:

c. LQ= _____
because:

d. QP = _____
because:

e. <LMN = _____
because:

f. <NQL = _____
because:

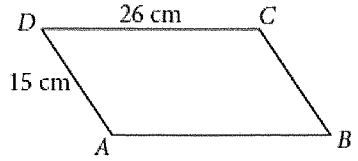
g. <MNQ = _____
because:

h. <LMQ = _____
because:

Name: _____ Date: _____ Block: _____

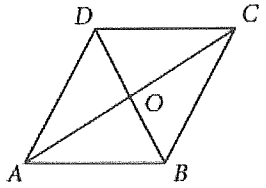
Directions: ABCD is a parallelogram. Show your geometry and what property or properties you used to help you answer the question.

7. Perimeter $ABCD$ = _____



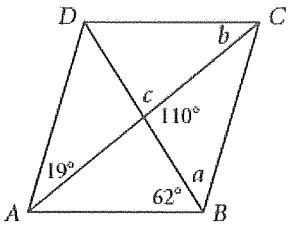
8. $AO = 11$, and $BO = 7$.

AC = _____, BD = _____



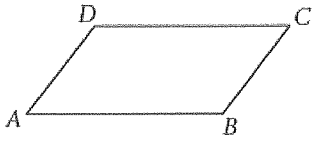
9. a = _____, b = _____,

c = _____



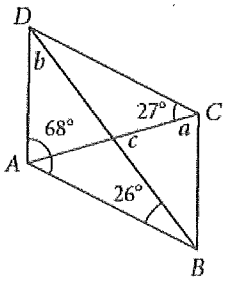
10. Perimeter $ABCD = 119$, and

$BC = 24$. AB = _____



11. a = _____, b = _____,

c = _____



12. Perimeter ABCD = 16x -12. Find AD.