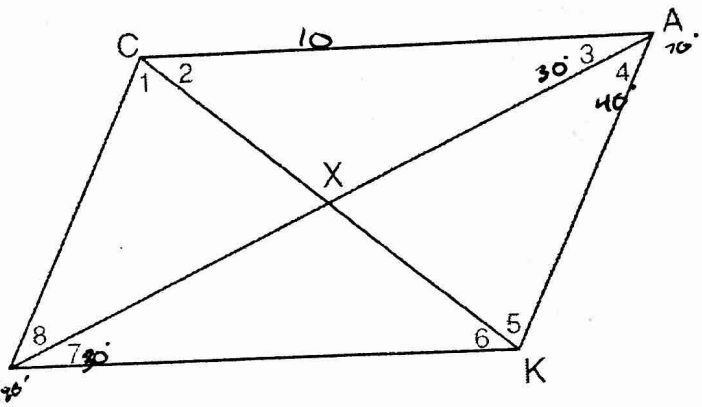
Homework

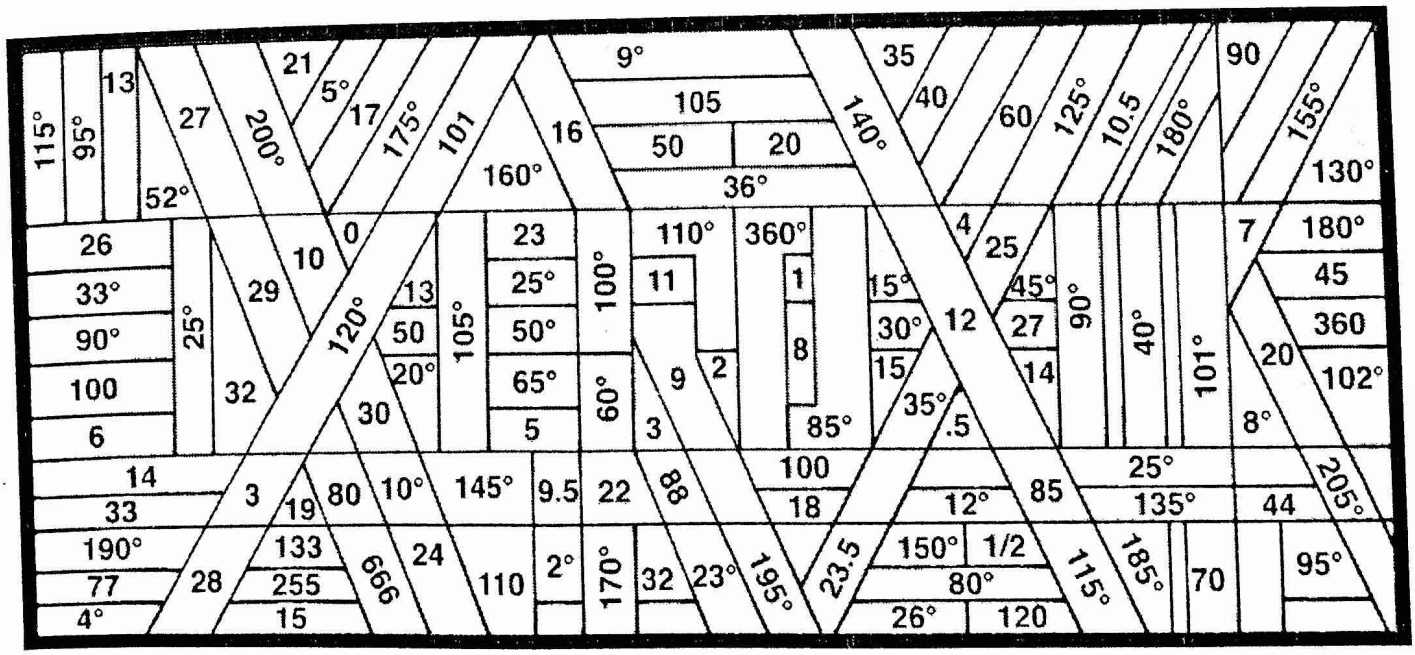
Properties of Parallelograms

Parallelograms have all of these properties:
—both pairs of opposite sides parallel
—both pairs of opposite sides congruent
—both pairs of opposite angles congruent
—diagonals bisect each other

Shade the answers below to discover the corporation whose success is based on the invention of Chester Carlson.



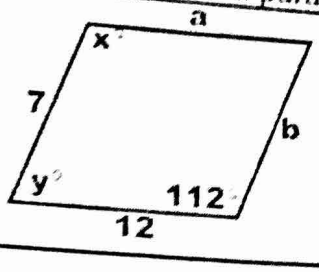
1. If CA = 10, EK = 10.
2. If CK = 18, CX = 9.
3. If ∠CEK = 85°, ∠CAK = 85°.
4. If ∠ECA = 130°, ∠CAK = 50°.
5. If ∠1 = 40° and ∠2 = 65°, ∠EKA = 105.
6. If EX = 15, EA = 30.
7. If CE = 12, KA = 12.
8. If ∠8 = 25° and ∠7 = 35°, ∠EKA = 120°.
9. If CX = 5x – 44 and XK = 2x + 25, then x = 23.
10. If ∠7 = 30° and ∠4 = 40°, ∠EKA = 110°.
11. If CE = 3x + 5 and AK = 7x – 15, then x = 5.
12. If ∠ECA = 6x – 20 and ∠EKA = 2x + 80, then x = 25.
13. If ∠CAE = 35°, ∠AEK = 35°.
14. If ∠2 = 100° and ∠3 = 20°, ∠CXA = 60°.
15. If ∠CEK = 80°, ∠EKA = 100.
16. ∠1 + ∠2 + ∠3 + ∠4 + ∠5 + ∠6 + ∠7 + ∠8 = 360.



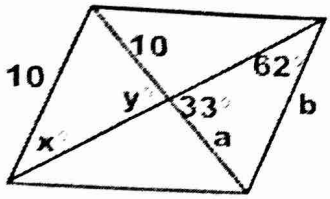
Level A:

In exercises 14 – 16, each quadrilateral is a parallelogram. Find the indicated values.

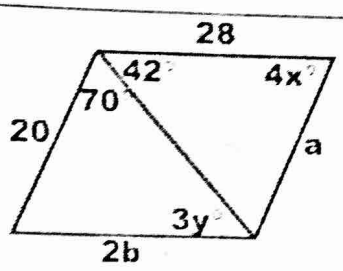
14. a = 12
    b = 7
    x = 112°
    y = 68°



15. a = 10
    b = 10
    x = 62°
    y = 33°

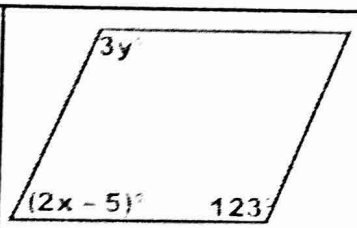


16. a = 20
    b = 14
    x = 17
    y = 14

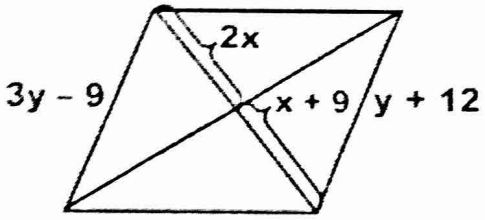


In exercises 17 – 19, what values must 'x' and 'y' have to make each quadrilateral a parallelogram?

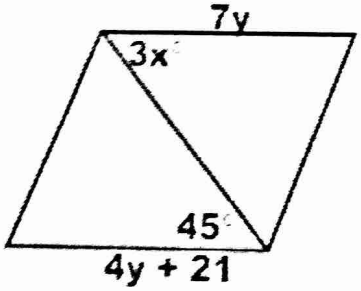
17. x = 31
    y = 41



18. x = 9
    y = 10.5



19. x = 15
    y = 7



Homework

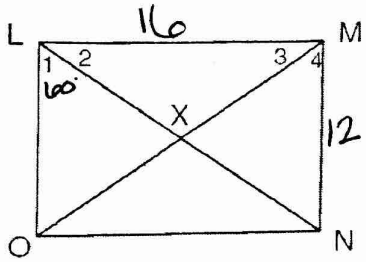
Properties of the Rectangle, Rhombus, and Square

Rectangle
all properties of parallelograms
plus
—all diagonals are congruent
—all angles measure 90°

Rhombus
all properties of parallelograms
plus
—all sides are congruent
—all diagonals are perpendicular
—all diagonals bisect opposite angles

Square
all properties of
—parallelogram
—rectangle
—rhombus

Use the properties to solve for the missing measures in the diagrams.



1. LMNO is a rectangle. If LM = 16, MN = 12, and ∠1 = 60°, find the following:

a. ON = 16 d. LX = 10 g. OX = 10
b. OL = 12 e. ∠LON = 90 h. ∠3 = 30°
c. LN = 20 f. ∠2 = 30° i. ∠4 = 60°

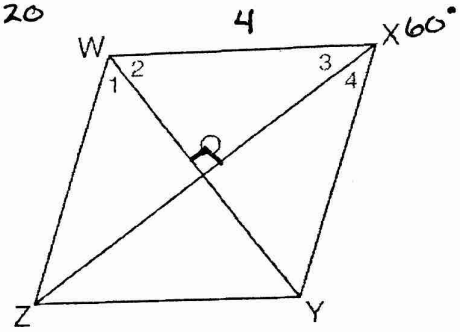
Right Δ use $a^2+b^2=c^2$ where c is the hypotenuse

$16^2+12^2=c^2$

$256+144=c^2$

$\sqrt{400}=\sqrt{c^2}$

$c=20$

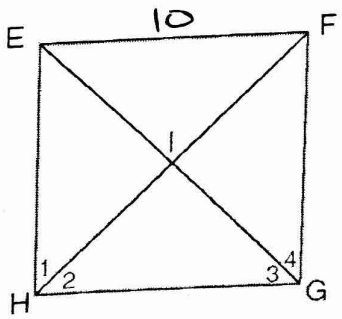


2. WXYZ is a rhombus. If WX = 4 and ∠WXY = 60°, find the following:

a. XY = 4 d. ∠2 = 60° g. WO = ____
b. ∠ZWX = 120° e. ∠3 = 30° h. OX = ____
c. ∠1 = 60° f. ∠4 = 30° i. WY = ____

~~$8=(4)^2+(OX)^2$ $8=16$~~

Can't DO.



3. EFGH is a square. If EF = 10, find the following:

a. FG = 10 d. EI = $5\sqrt{2}$ g. ∠1 = 45°
b. ∠EFG = 90° e. IF = $5\sqrt{2}$ h. ∠3 = 45°
c. EG = $10\sqrt{2}$ f. ∠EIF = 90° i. HF = $10\sqrt{2}$

$10^2+10^2=(EG)^2$

$100+100=(EG)^2$

$\sqrt{200}=\sqrt{(EG)^2}$

$10\sqrt{2}=EG$

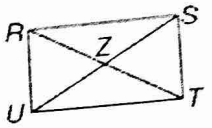
Homework

NAME _____ DATE _____ PERIOD _____

6-4 Practice

Rectangles

ALGEBRA Quadrilateral *RSTU* is a rectangle.



1. If $UZ = x + 21$ and $ZS = 3x - 15$, find US.

$x + 21 = 3x - 15$

$21 = 2x - 15$

$36 = 2x$

$x = 18$

$US = 78$

2. If $RZ = 3x + 8$ and $ZS = 6x - 28$, find UZ.

$3x + 8 = 6x - 28$

$8 = 3x - 28$

$36 = 3x$

$x = 12$

$UZ = 44$

3. If $RT = 5x + 8$ and $RZ = 4x + 1$, find ZT.

$x = 7$

$ZT = 9$

4. If $m\angle SUT = 3x + 6$ and $m\angle RUS = 5x - 4$, find $m\angle SUT$.

$x = 11$

$m\angle SUT = 39°$

5. If $m\angle SRT = x + 9$ and $m\angle UTR = 2x - 44$, find $m\angle UTR$.

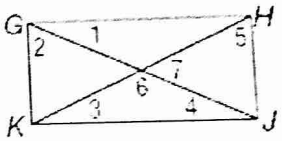
$x = 53$

$m\angle UTR = 62°$

6. If $m\angle RSU = x + 41$ and $m\angle TUS = 3x + 9$, find $m\angle RSU$.

$m\angle RSU = 57°$

Quadrilateral *GHJK* is a rectangle. Find each measure if $m\angle 1 = 37$.



7. $m\angle 2$ 53°

8. $m\angle 3$ 37°

9. $m\angle 4$ 37°

10. $m\angle 5$ 53°

11. $m\angle 6$ 106°

12. $m\angle 7$ 74°