Fall Final Review Packet (Units 1-5)
Unit 1:

Directions: Using the rule provided, describe the transformation or sequence of transformations that have occurred.
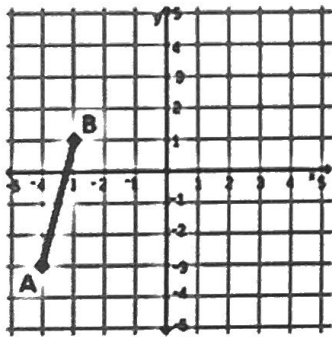
1) $(x, y) \rightarrow ''(y, x + 2)$

2) $(x, y) \rightarrow '(-y, -x)$

3) $(x, y) \rightarrow ''(-x, 3y)$

4) $(x, y) \rightarrow '(-y, x)$

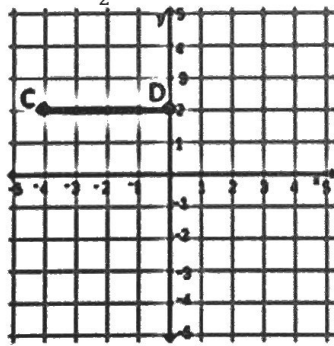**Directions: Write the rule to represent the transformation.**

5) Rotate 180° CW about the origin

6) Horizontal stretch of 10

7) Translate 4 units left and 8 units up

8) Reflect over $y = x$

9) Rotate 270° CCW about the origin

10) Dilate by a scale factor of $\frac{1}{3}$

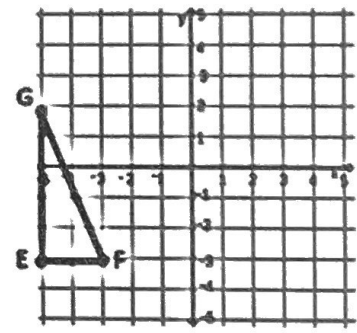**Directions: Graph the transformation using the given information.**

11) $(x, y) \rightarrow (x, 1.5y)$

12) Dilate by $\frac{1}{2}$; then, reflect over $x = 1$
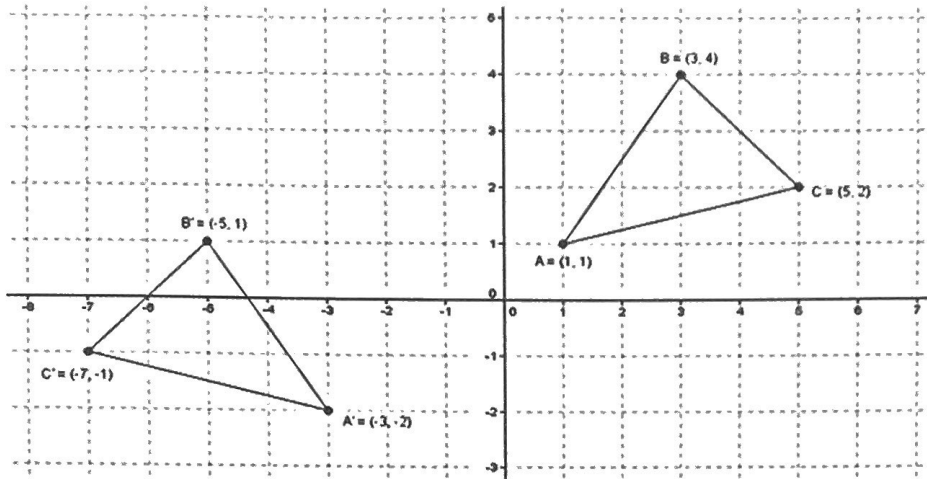

13) Rotate 180° CW about $(-1, 0)$

Directions: Solve each problem.

14) If $Z(3, -4)$, what is Z'' after it has been rotate 180° CW and then vertically stretched by 5?

15) If $R'(0, 5)$, what is R if the following rule was used to produce the image: $(x, y) \rightarrow '(-y, -x)$?

16) If $J(3, 1)$ is reflected over $y = x$, dilated by 3 with a center at $(1, 2)$, and then rotated 90°CCW, what is J'''?
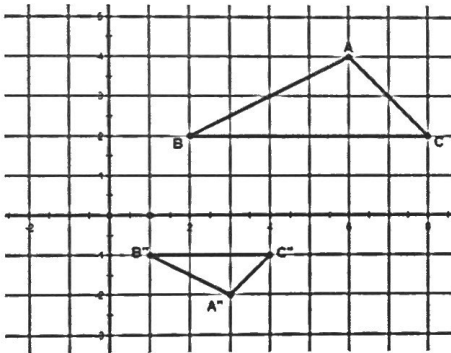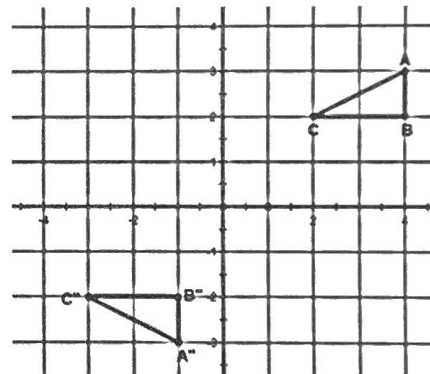
Directions: Describe the sequence of transformations.

17)

Directions: Determine how to map the pre-image onto the image.

18)

19)

Unit 2:

Determine the converse, inverse, and contrapositive of the conditional statements. Indicate whether each statement is true or false.

1. Conditional statement: If R is the midpoint of $\overline{QS}$, then $\overline{QR} \cong \overline{RS}$.

Q   R   S

Converse: _____

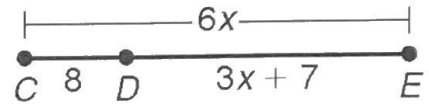Inverse:_____

Contrapositive: _____

Identify the property that justifies each statement.

3. If $\angle ABC \cong \angle DEF$, then $\angle DEF \cong \angle ABC$.   **4.** $\angle 1 \cong \angle 2$ and $\angle 2 \cong \angle 3$, so $\angle 1 \cong \angle 3$.
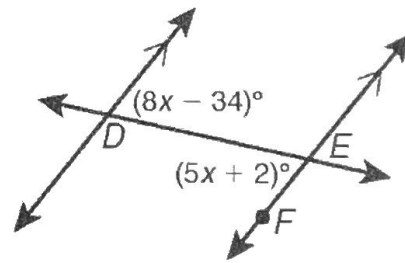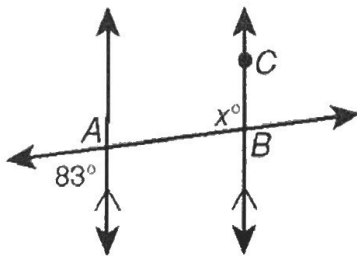
5. $\overline{WX} \cong \overline{XW}$

Write a justification for each step.

6. $CE = CD + DE$ _____

$6x = 8 + (3x + 7)$ _____

$6x = 15 + 3x$ _____

$3x = 15$ _____

$x = 5$ _____

$\overset{\longmapsto\quad 6x \quad\longmapsto}{C \;\; 8 \;\; D \qquad 3x+7 \qquad\quad E}$

Find each angle measure.

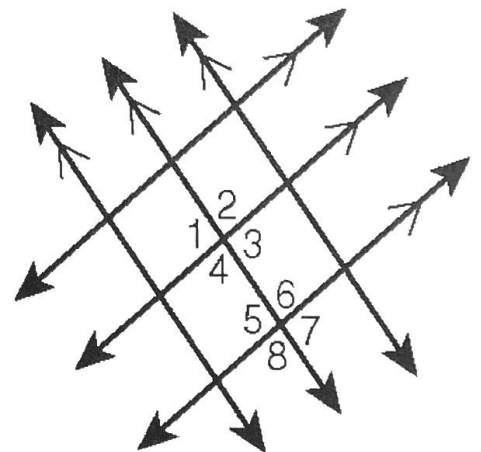8. $m\angle ABC$ _____   **9.** $m\angle DEF$ _____

Give two examples of each kind of angle pair in the figure.

10. alternate interior angles _____

11. alternate exterior angles _____

12. same-side interior angles _____

13. Corresponding angles _____

14. Given $p \parallel q$, m∠1 = 100°, and m∠2 = 61°, find the measures of all the numbered angles.

m∠3 = _____, m∠4 = _____, m∠5 = _____, m∠6 = _____

m∠7 = _____, m∠8 = _____, m∠9 = _____

m∠10 = _____, m∠11 = _____, m∠12 = _____

What is the relationship between ∠1 and ∠4?

What is the relationship between ∠2 and ∠8?

What is the relationship between ∠6 and ∠9?
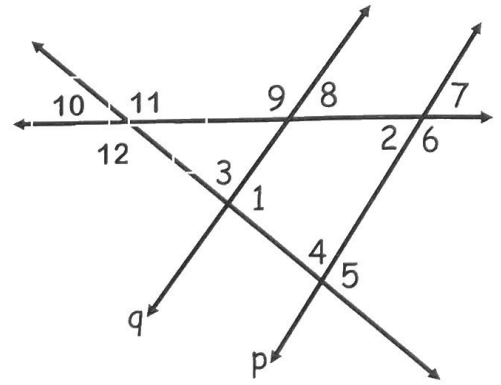
Use the figure for Exercises 16-19. Tell whether lines m *and* n *must be parallel from the given information. If they are, state your reasoning. (*Hint: *The angle measures may change for each exercise, and the figure is for reference only.)*
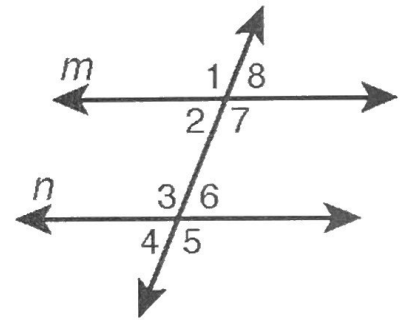
16. ∠7 ≅ ∠3

_____

17. m∠3 = (15x + 22)°, m∠1 = (19x − 10)°, x = 8

_____

18. ∠7 ≅ ∠6

_____

19. m∠2 = (5x + 3)°, m∠3 = (8x − 5)°,   x = 14

_____

Name the shortest segment from the point to the line and write an inequality for x.

20.

21.
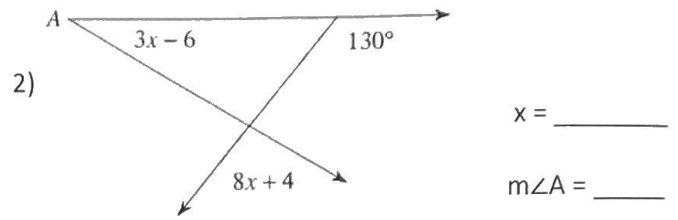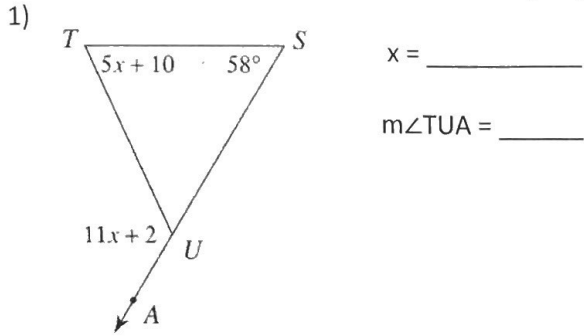
_____   _____
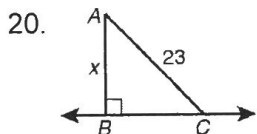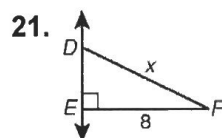
Unit 3:

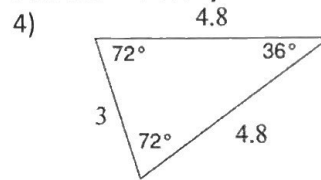**Directions: Solve for x. Then find the missing angle.**

1)

T, 5x + 10, 58°, S, 11x + 2, U, A

x = _____

m∠TUA = _____

2)

A, 3x − 6, 130°, 8x + 4

x = _____

m∠A = _____

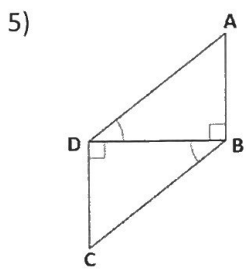**Directions: Classify the triangle by its angles.**

3) m∠A = (4x + 10)°
    m∠B = (−3x + 60)°
    m∠C = (x + 74)°

Direction: Classify the triangle by its sides.

4)

4.8, 72°, 36°, 3, 72°, 4.8

Directions: Determine if the triangles are congruent. If they are, justify your answer & write a triangle congruence statement.
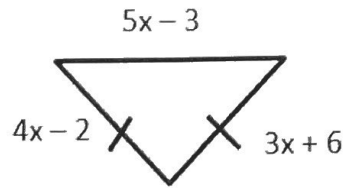
5)

A, D, B, C

6)

C, L, B, A, K, J

7)

D, F, L, J, E, K
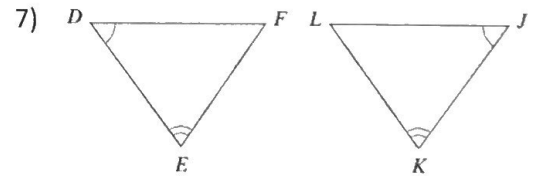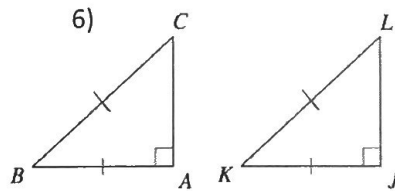
Directions: Determine the missing information needed to prove the triangles are congruent with the given theorem or postulate.

8) ASA

D, U, T, S

9) SSS

R, Q, S, D

10) AAS

A, D, B, C
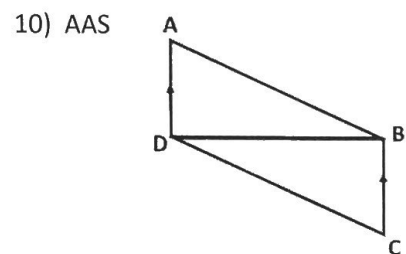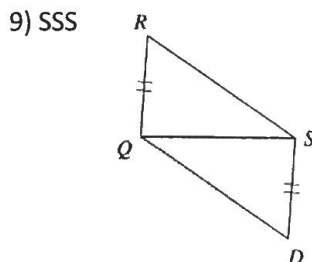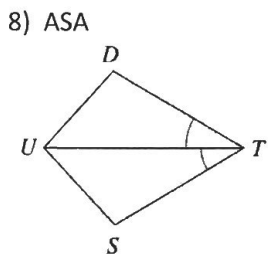
11) Given that $\triangle CDE \cong \triangle HIJ$, CE = 5x, and HJ = 2x + 15, find x and CE.

12) What is the length of the longest side?

$$5x - 3$$

$4x - 2$ $3x + 6$

13) What is the measure of the vertex angle in an isosceles triangle if a base angle measures 45°?

14) In an isosceles triangle, a vertex angle measures 3x and a base angle measures x. What is the measure of each of the angles in the isosceles triangle?

Directions: Determine if the following side lengths can be used to make a triangle. If they are, write the sides in order from least to greatest and then the angles in order from least to greatest.

15) AB = 5, BC = 8, AC = 10

16) MN = 3, LN = 2, ML = 5

Directions: Use the triangle midsegment theorem and the figure below to answer 19 – 22.
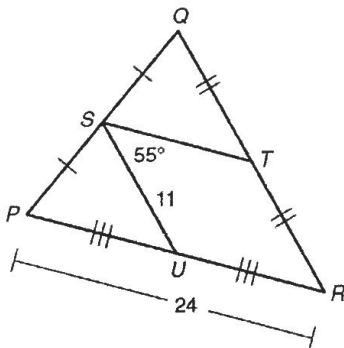
19) ST _____

20) QR _____

21) PU _____

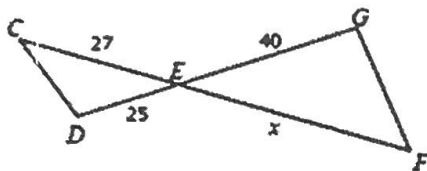22) m∠SUP _____

unit 4:

1. The ratio of the sides of a triangle is 2:6:7. If the perimeter of the triangle is 195 meters, what is the length of the longest side?
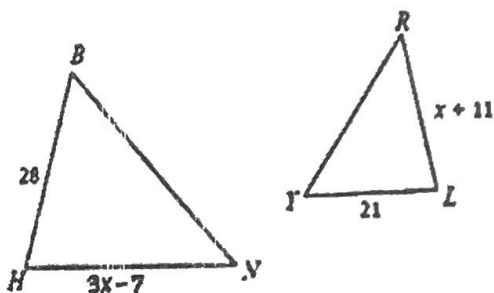
2. The ratio of the angles in a triangle is 3:10:7. What is the measure of the smallest angle?

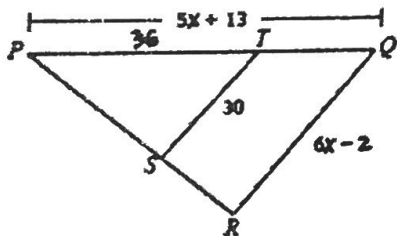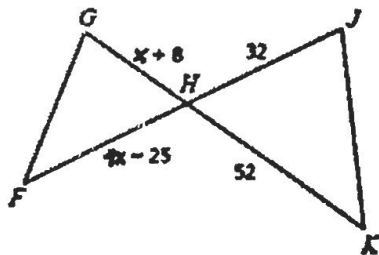**6.** If $\triangle CDE \sim \triangle FGE$, find the value of x.

$x =$

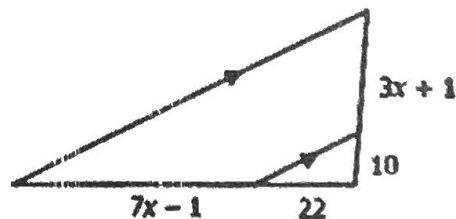**7.** If $\triangle HEV \sim \triangle LYR$, find the value of x.

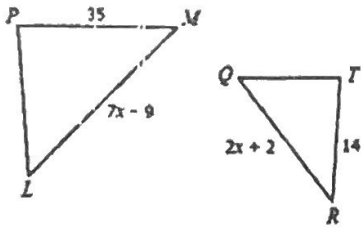**8.** If $\triangle PTS \sim \triangle PQR$, find the value of x.

21. Solve for x.

9. If $\triangle FGH \sim \triangle KJH$, find FH.

10. If $\triangle PML \sim \triangle TRQ$, find QR.

P —35— M
7x - 9
L

Q   T
2x + 2   14
R

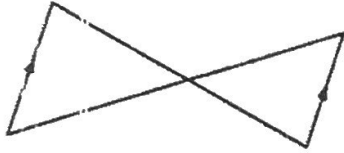**25.** Solve for x.
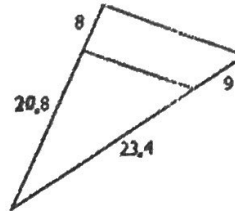
$x + 3$
x
4
8

24. Solve for x.

$3x + 2$
12
9
33
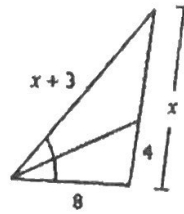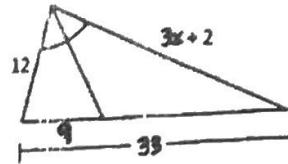
For Questions 11-16, determine how (if possible) the triangles can be proved similar.
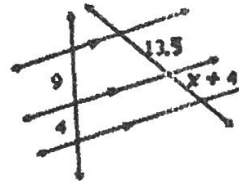
11.

A. AA~
B. SSS~
C. SAS~
D. Not Similar

12.

8
20.8
9
23.4

A. AA~
B. SSS~
C. SAS~
D. Not Similar

---

19. Solve for x.

16
20
46
x

$x =$

20. Solve for x.

13.5
9      $x + 4$
4

$x =$

13.

20
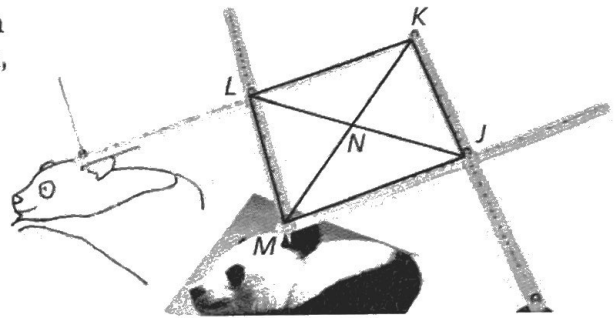24   42
36
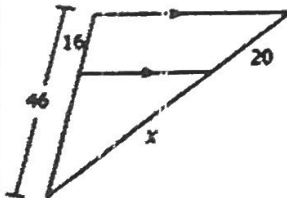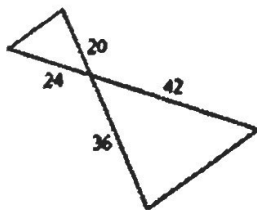
A. AA~
B. SSS~
C. SAS~
D. Not Similar

14.

52
38

A. AA~
B. SSS~
C. SAS~
D. Not Similar

7-1 Properties of Parallelograms

A pantograph is used to copy drawings. Its legs form a parallelogram. In $\square JKLM$, $LM = 17$ cm, $KN = 13.5$ cm, and $m\angle KJM = 102°$. Find each measure.
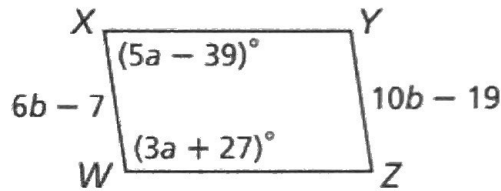
1. KM

2. KJ

3. MN

4. $m\angle JKL$

5. $m\angle JML$

6. $m\angle KLM$

7. Three vertices of $\square ABCD$ are $A(-3, 1)$, $B(5, 7)$, and $C(6, 2)$. Find the coordinates of vertex D.
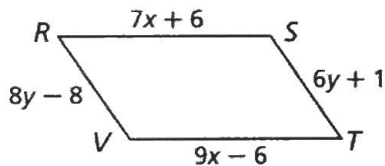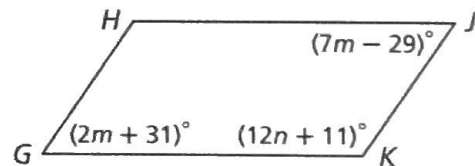

WXYZ is a parallelogram. Find each measure.
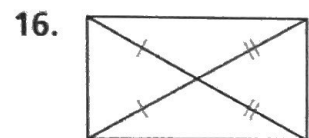
8. WX

9. YZ

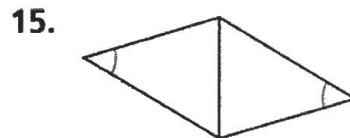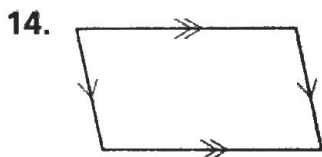10. $m\angle X$

11. $m\angle W$

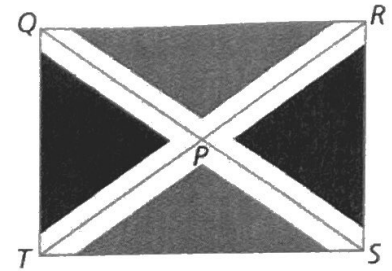12. Show that $RSTV$ is a parallelogram for $x = 6$ and $y = 4.5$.

13. Show that $GHJK$ is a parallelogram for $m = 12$ and $n = 9.5$.

Determine if each quadrilateral must be a parallelogram. Justify your answer.

14.

15.

16.

The flag of Jamaica is a rectangle with stripes along the diagonals. In rectangle QRST, QS = 80.5, and RS = 36. Find each length.

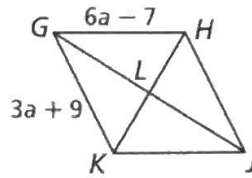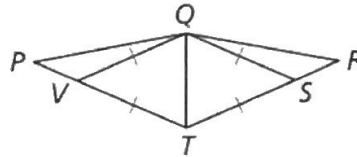**18.** SP   **19.** QT   **20.** TR   **21.** TP

GHJK is a rhombus. Find each measure.

22. HJ

23. m∠HJG and m∠GHJ if m∠JLH = $(4b - 6)°$ and m∠JKH = $(2b + 11)°$
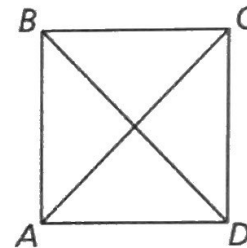
24. Given: QSTV is a rhombus. $\overline{PT} \cong \overline{RT}$
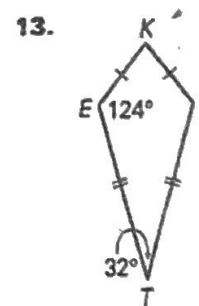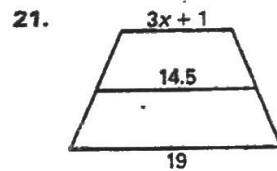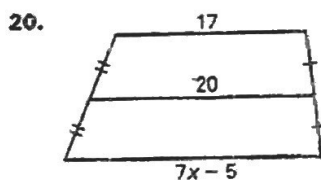Prove: $\overline{PQ} \cong \overline{RQ}$

Determine if the conclusion is valid. If not, tell what additional information is needed to make it valid.

25. Given: $\overline{AC} \perp \overline{BD}$
Conclusion: ABCD is a rhombus.

26. Given: $\overline{AB} \cong \overline{CD}, \overline{AC} \cong \overline{BD}, \overline{AB} \parallel \overline{CD}$
Conclusion: ABCD is a rectangle.

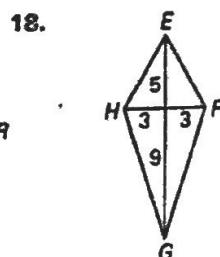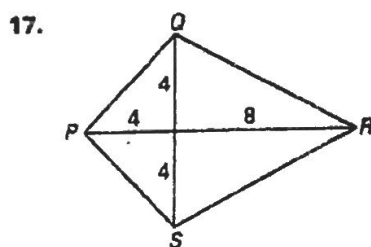Find the value of x:

20.

17
20
7x − 5

21.

3x + 1
14.5
19

Find the measure of angle K:

13.

K
E 124°
I
32°
T

Use the Pythagorean Theorem to find the side lengths of the kite:

17.

Q
4
4   8
P   R
4
S

18.

E
5
H 3 3 F
9
G

Find the measure of angle A, B, &C:

4.

A 97°
B
D
C