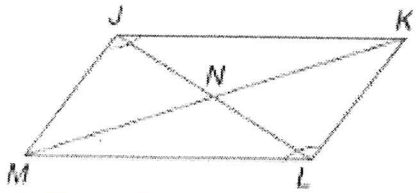
Key

ACC GEOMETRY **4.1, 4.2 & 5.4 EXTRA PRACTICE**

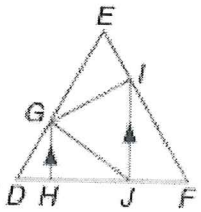
Pg. 206 #13-18, 23-27, 29-34

13. Identify the obtuse triangles if $\angle MJK \cong \angle KLM$, $m\angle MJK = 126$, and $m\angle JNM = 52$.



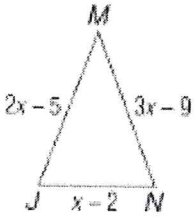
$\triangle MJK, \triangle KLM, \triangle JKN, \triangle LMN$

14. Identify the right triangles if $\overline{IJ} \parallel \overline{GH}$, $\overline{GH} \perp \overline{DF}$, and $\overline{GI} \perp \overline{EF}$.



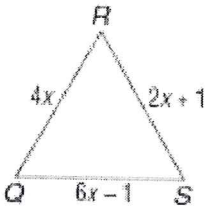
$\triangle GHD$
$\triangle GHJ$
$\triangle IJF$
$\triangle EIG$

15. ALGEBRA Find x, JM, MN, and JN if $\triangle JMN$ is an isosceles triangle with $\overline{JM} \cong \overline{MN}$.



$x = 4$
$JM = 3$
$MN = 3$
$JN = 2$

16 ALGEBRA Find x, QR, RS, and QS if $\triangle QRS$ is an equilateral triangle.



$x = \frac{1}{2}$
$QR = 2$
$RS = 2$
$QS = 2$

COORDINATE GEOMETRY Find the measures of the sides of $\triangle ABC$ and classify each triangle by its sides.

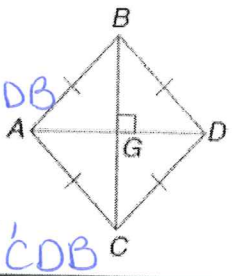
17. $A(5, 4)$, $B(3, -1)$, $C(7, -1)$

$AB = \sqrt{29}$
$BC = 4$
$AC = \sqrt{29}$
Isosceles

18. $A(-4, 1)$, $B(5, 6)$, $C(-3, -7)$

$AB = \sqrt{106}$ $BC = \sqrt{233}$
$CA = \sqrt{65}$
Scalene

Identify the indicated triangles in the figure if $\overline{AB} \cong \overline{BD} \cong \overline{DC} \cong \overline{CA}$ and $\overline{BC} \perp \overline{AD}$.



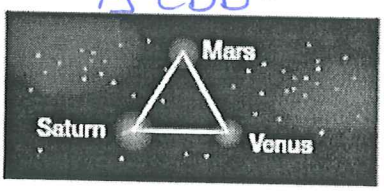
23. right $\triangle AGB$, $\triangle AGC$, $\triangle DGB$, $\triangle DGC$

24. obtuse $\triangle BAC$, $\triangle CDB$

25. scalene $\triangle AGB$, $\triangle AGC$, $\triangle DGB$, $\triangle DGC$

26. isosceles $\triangle ABD$, $\triangle ACD$, $\triangle BAC$, $\triangle CDB$

27. ASTRONOMY On May 5, 2002, Venus, Saturn, and Mars were aligned in a triangular formation. Use a protractor or ruler to classify the triangle formed by sides and angles.



Equiangular
Equilateral

ALGEBRA Find x and the measure of each side of the triangle.

29. $\triangle GHJ$ is isosceles, with $\overline{HG} \cong \overline{JG}$, $GH = x + 7$, $GJ = 3x - 5$, and $HJ = x - 1$.

$X = 6$ $GJ = 13$
$GH = 13$ $HJ = 5$

30. $\triangle MPN$ is equilateral with $MN = 3x - 6$, $MP = x + 4$, and $NP = 2x - 1$.

$X = 5$ $MN = 9$
$MP = 9$ $NP = 9$

31. $\triangle QRS$ is equilateral. QR is two less than two times a number, RS is six more than the number, and QS is ten less than three times the number.

$X = 8$ $QR = 14$ $QS = 14$
$RS = 14$

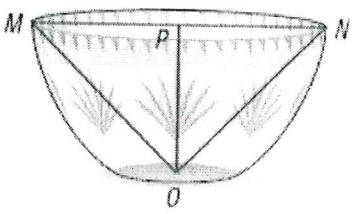
32. $\triangle JKL$ is isosceles with $\overline{KJ} \cong \overline{LJ}$. JL is five less than two times a number. JK is three more than the number. KL is one less than the number. Find the measure of each side.

$X = 8$, $JL = 11$, $JK = 11$, $KL = 7$

33. **ROAD TRIP** The total distance from Charlotte to Raleigh to Winston-Salem and back to Charlotte is about 292 miles. The distance from Charlotte to Winston-Salem is 22 miles less than the distance from Raleigh to Winston-Salem. The distance from Charlotte to Raleigh is 60 miles greater than the distance from Winston-Salem to Charlotte. Classify the triangle that connects Charlotte, Raleigh, and Winston-Salem.

Scalene it is 130 from C → R, 92 from R → W and 70 from W → C

34. **CRYSTAL** The top of the crystal bowl pictured at the right is circular. The diameter at the top of the bowl is $\overline{MN}$. P is the midpoint of $\overline{MN}$, and $\overline{OP} \perp \overline{MN}$. If $MN = 24$ and $OP = 12$, determine whether $\triangle MPO$ and $\triangle NPO$ are equilateral.



NO, $MO = NO = 12\sqrt{2}$

Pg 229 #7-18

Determine whether the given measures can be the lengths of the sides of a triangle. Write *yes* or *no*. Explain.

7. 1, 2, 3 NO
8. 2, 6, 11 no
9. 8, 8, 15 Yes
10. 13, 16, 29 no
11. 18, 32, 21 Yes
12. 9, 21, 20 yes

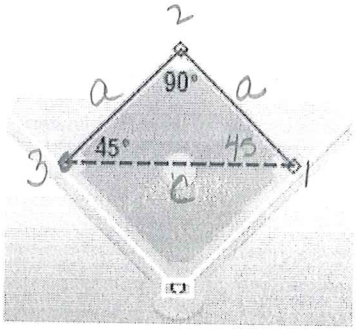
Find the range for the measure of the third side of a triangle given the measures of two sides.

13. 5 and 11 $6 < n < 16$
14. 7 and 9 $2 < n < 16$
15. 10 and 15 $5 < n < 25$
16. 12 and 18 $6 < n < 30$
17. 21 and 47 $26 < n < 68$
18. 32 and 61 $29 < n < 93$

Pg 284 #10

10. BASEBALL During a baseball game, the batter hits the ball to the third baseman and begins to run toward first base. At the same time, the runner on first base runs toward second base. If the third baseman wants to throw the ball to the nearest base, to which base should he throw? Explain.

He needs to throw to 2nd,



REASONING Is the following statement *always*, *sometimes*, or *never* true? Justify your answer.

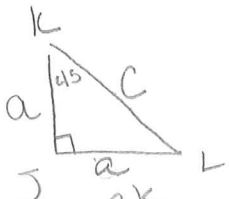
In $\triangle JKL$ with right angle J, if $m\angle J$ is twice $m\angle K$, then the side opposite $\angle J$ is twice the length of the side opposite $\angle K$.

NO, Never

$KL^2 = a^2 + a^2$

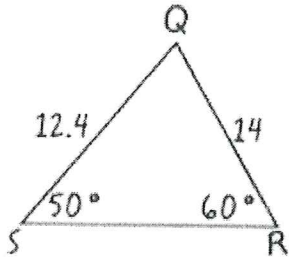
$\sqrt{KL^2} = \sqrt{2a^2}$

$KL = a\sqrt{2}$

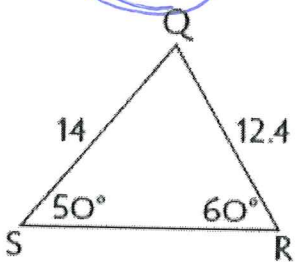


FIND THE ERROR Hector and Grace each labeled $\triangle QRS$. Who is correct? Explain.

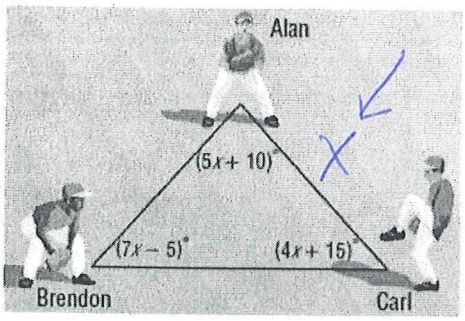
Hector



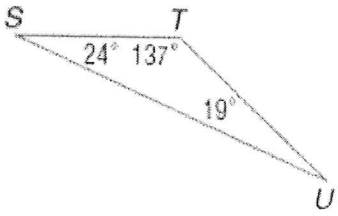
Grace



BASEBALL Alan, Brendon, and Carl were standing in the triangular shape shown below, throwing a baseball to warm up for a game. Between which two players was the throw the longest? (Lesson 5-2)



6. MULTIPLE CHOICE Which list gives the sides of $\triangle STU$ in order from longest to shortest? (Lesson 5-2)



A $\overline{TU}, \overline{ST}, \overline{SU}$

B $\overline{SU}, \overline{TU}, \overline{ST}$

C $\overline{SU}, \overline{ST}, \overline{TU}$

D $\overline{ST}, \overline{TU}, \overline{SU}$

Pg 294

In $\triangle QRS$, $m\angle Q = x + 15$, $m\angle R = 2x + 10$, and $m\angle S = 4x + 15$. (Lesson 5-2)

$\angle Q = 35°$ $\angle S = 95°$
$\angle R = 50°$

7. Determine the measure of each angle.

8. List the sides in order from shortest to longest. RS, QS, QR

9. TRAVEL A plane travels from Des Moines to Phoenix, on to Atlanta, and then completes the trip directly back to Des Moines, as shown in the diagram. Write the lengths of the legs of the trip in order from greatest to least. (Lesson 5-2)