

CODE RED – DO NOW

Complete Problems #1a-c

1. Given $\triangle ABC$, with $\overline{AB}=23$, $\overline{BC}=17$, and $\overline{AC}=35$

a) Determine if it makes a triangle $23+17=40$
 $40 > 35$ Yes

b) If yes, draw the triangle and label the angles and sides.

c) Order the angles from smallest to largest. $\angle C, \angle B, \angle A$

CONGRUENT TRIANGLES

SOL G.6

Learning Target: By the end of class today, I will be able to determine corresponding parts of congruent triangles given a congruence statement or figure and will be able to use these relationships to determine missing information, as evidenced by scoring at least 75% (3 of 4) on the exit ticket.

Essential Question: What is the relationship between angles and sides of congruent triangles.

TODAY'S AGENDA

- ✓ DO NOW
- ✓ G.5 Quiz Review
- ✓ CPCTC
- ✓ Equilateral and Isosceles Triangles
- ✓ Partner Practice
- ✓ Exit Ticket

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Review your G.5 Quiz with your neighbor, and prepare any questions for Coach Riddick

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1. Given: $\triangle RST$
 $RS = 14$ in.
 $ST = 10$ in.
 $TR = 16$ in.

Order the angles from least to greatest $\angle R, \angle T, \angle S$

2. What lengths of segments will NOT form a triangle? Circle all that apply.

6, 10, 5	9, 4, 5
1, 11, 10	8, 10, 8

3. Solve for x.

$5x+5 = 72+8+2x$
 $5x+5 = 80+2x$
 $3x+5 = 80$
 $3x = 75$
 $x = 25$

CODE YELLOW

4. Find $m\angle S$

42°

5. Solve for x.

$2x+3x+5x=180$
 $10x=180$
 $x=18$

6. List the sides of the triangle in order from greatest to least.

~~Sides~~
 \overline{BD}
 \overline{CD}
 \overline{BC}

CODE YELLOW

7. Two lengths of a triangle are 32 and 19. What is the range of the possible lengths of the third side?
 $13 < x < 51$

8. Which of the following could be the lengths of the sides of a triangle?
 a) 9 cm, 16.5 cm, 7 cm.
 b) 4 m, 4 m, 8 m.
c) 7 in, 6 in, 2 in.
 d) 13 yd, 21 yd, 34 yd.

9. Given: $\triangle APM$, where $AP = 32$ and $PM = 16$. Circle the possible lengths for AM ?

 $16 < x < 48$

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Vocabulary

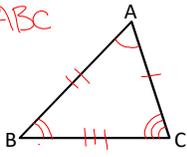
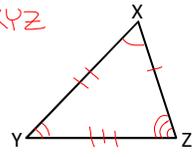
Corresponding Parts of Congruent Triangles are Congruent (CPCTC)

Congruent Triangles - two triangles that are the same shape and size.

Corresponding Parts - angles or sides that are in the same relative position in both triangles.

CODE YELLOW

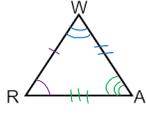
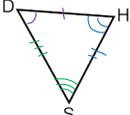
Congruent Triangles

$\triangle ABC$  $\triangle XYZ$ 

$\triangle ABC \cong \triangle XYZ$

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List the 6 corresponding parts...

Congruence statement
 $\triangle RWA \cong \triangle DHS$

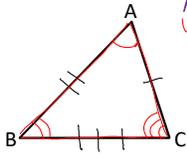
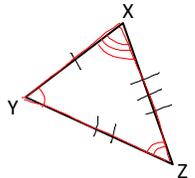
3 angles
 $\angle R \cong \angle D$
 $\angle W \cong \angle H$
 $\angle A \cong \angle S$

3 sides
 $RW \cong DH$
 $WA \cong HS$
 $RA \cong DS$

RWA
DHS

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Congruent Triangles

$\triangle ABC$  $\triangle ZYX$ 

Write a congruence statement: $\triangle ABC \cong \triangle ZYX$

CODE GREEN

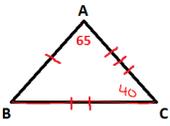
$\triangle ABC \cong \triangle ZYX$

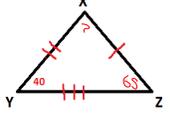
Copy down the triangles and answer the questions.

a) Write the congruence statement for the triangles.
 $\triangle ABC \cong \triangle ZYX$

b) What side is congruent to BC ? ZY

c) What is the measure of $\angle X$? 75°


 $40 + 65 = 105$


 $180 - 105 = 75$

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Algebra and Congruent Triangles...

$m\angle A = 65^\circ$
 $m\angle D = 65^\circ$
 $3x - 10 = 2x + 15$
 $x = 25$

$\triangle ABC \cong \triangle DEF$

ABC
DEF

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Given $\triangle QRS \cong \triangle TUV$, $QS = 5x + 2$ and $TU = 9x - 6$, find QS .

QRS
TUV

$5x + 2 = 9x - 6$
 $x = 2$
 $5(2) + 2 = 12 = QS$

CODE GREEN

Given $\triangle ABC \cong \triangle DEF$, $BC = x + 10$ and $FE = 4x - 8$, find BC .

ABC
DEF

$x + 10 = 4x - 8$
 $+8 \quad +8$
 $x + 18 = 4x$
 $-x \quad -x$
 $18 = 3x$
 $\frac{18}{3} = \frac{3x}{3}$
 $x = 6$
 $(6) + 10 = 16 = BC$

Given $\triangle QRS \cong \triangle TUV$, $\angle Q = 53^\circ$ and $\angle V = 38^\circ$, find $\angle R$.

$\frac{53}{91} \quad \frac{180}{89}$
 $+38 \quad -91$
 $\frac{180}{89} \quad -91$
 $\frac{89}{89} \quad \frac{89}{89}$
 $\angle R = 89^\circ$

CODE GREEN

If $\triangle PQR \cong \triangle STU$, which statement is always true?

F $\angle RQP \cong \angle TSU$
 G $\angle QPR \cong \angle TUS$
 H $\overline{RP} \cong \overline{SU}$
 J $\overline{PR} \cong \overline{TU}$

CODE RED - DO NOW

Complete Problems #1-3

1) If $\triangle PQR \cong \triangle STU$, write the 6 corresponding parts.

$\triangle PQR \cong \triangle STU$
 $\angle P \cong \angle S$
 $\angle Q \cong \angle T$
 $\angle R \cong \angle U$
 $\overline{PQ} \cong \overline{ST}$
 $\overline{QR} \cong \overline{TU}$
 $\overline{PR} \cong \overline{TU}$

2) Given $\triangle ABC \cong \triangle DEF$, $AC = 2x + 12$ and $DF = 5x - 18$, find AC .

ABC
DEF

$2x + 12 = 5x - 18$
 $2x + 12 = 5x - 18$
 $-2x \quad -2x$
 $12 = 3x - 18$
 $+18 \quad +18$
 $30 = 3x$
 $\frac{30}{3} = \frac{3x}{3}$
 $x = 10$

3) Given $\triangle QRS \cong \triangle TUV$, $\angle Q = 23^\circ$ and $\angle V = 88^\circ$, find $\angle R$.

QRS
TUV

$\angle Q \cong \angle T$
 $\angle S \cong \angle U$

$\frac{23}{111} \quad \frac{180}{89}$
 $+88 \quad -111$
 $\frac{180}{89} \quad -111$
 $\frac{89}{89} \quad \frac{89}{89}$
 $\angle R = 89^\circ$

CODE YELLOW

$\triangle ABC$

Find the measure of $\angle B$: 40°

Order the side lengths from greatest to least:

\overline{BC} ,

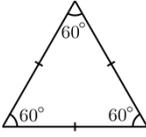
CODE YELLOW

Isosceles Triangles



- Two congruent sides
- Two congruent angles

Equilateral Triangles

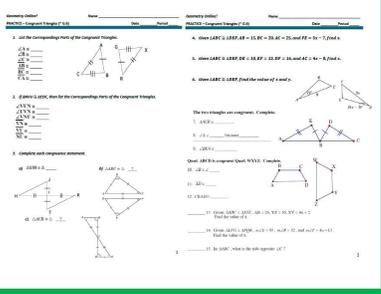


- Three congruent sides
- Three congruent angles

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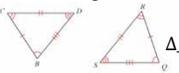
Complete the worksheet at your desk with your partner in Code Green.

Raise your hand with questions.



CODE RED – EXIT TICKET

Complete Problems #1-4

<p>1. Write the 6 corresponding parts if $\triangle JKL \cong \triangle MNO$</p>	<p>2. Write the congruence statement given the two triangles.</p>  <p style="text-align: center;">$\triangle \underline{\hspace{1cm}} \cong \triangle \underline{\hspace{1cm}}$</p>
<p>3. Given: $\triangle BAC \cong \triangle FED$. If $\angle DFE = 50^\circ$ and $m\angle ACB = 85^\circ$, find $m\angle BAC$.</p>	<p>4. Given $\triangle CJR \cong \triangle MLS$, $\overline{ML} = 7x + 4$ and $\overline{JC} = 12x - 6$, find CJ.</p>