Textbook Assignment – In your notes

Take notes and solve problems on congruent triangles:

1. Turn to page 239. Read and take notes on chapter 4.4, Congruent Triangles.
   (Vocab: corresponding angles, corresponding sides, congruent polygons, naming polygons, naming congruent corresponding parts)
2. Read and understand Example 1 on page 239 and Example 2 on page 240.
3. Do problems #1-10 on page 242.
4. Read and understand Example 3 on page 240 and Example 4 on page 241.
5. Do problems #11 on page 242 and #13-18, 23-25 on page 243.

Vocabulary Apply the vocabulary from this lesson to answer each question.

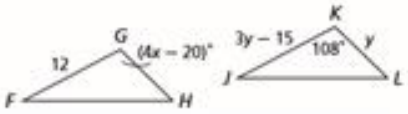
1. An everyday meaning of *corresponding* is "matching." How can this help you find the *corresponding* parts of two triangles?
2. If $\triangle ABC \cong \triangle RST$, what angle corresponds to $\angle S$?

Given: $\triangle RST \cong \triangle LMN$. Identify the congruent corresponding parts.

3. $\overline{RS} \cong$?
4. $\overline{LN} \cong$?
5. $\angle S \cong$?
6. $\overline{TS} \cong$?
7. $\angle L \cong$?
8. $\angle N \cong$?

Given: $\triangle FGH \cong \triangle JKL$. Find each value.

9. KL
10. x



11. Given: E is the midpoint of $\overline{AC}$ and $\overline{BD}$.
    $\overline{AB} \cong \overline{CD}$, $\overline{AB} \parallel \overline{CD}$
    Prove: $\triangle ABE \cong \triangle CDE$
    Proof:

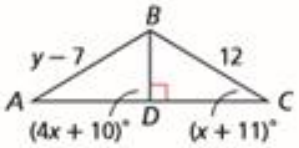
Statements	Reasons
1. $\overline{AB} \parallel \overline{CD}$	1. a. ?
2. $\angle ABE \cong \angle CDE$, $\angle BAE \cong \angle DCE$	2. b. ?
3. $\overline{AB} \cong \overline{CD}$	3. c. ?
4. E is the mdpt. of $\overline{AC}$ and $\overline{BD}$.	4. d. ?
5. e. ?	5. Def. of mdpt.
6. $\angle AEB \cong \angle CED$	6. f. ?
7. $\triangle ABE \cong \triangle CDE$	7. g. ?

Given: Polygon $CDEF \cong$ polygon $KLMN$. Identify the congruent corresponding parts.

13. $\overline{DE} \cong$?
14. $\overline{KN} \cong$?
15. $\angle F \cong$?
16. $\angle L \cong$?

Given: $\triangle ABD \cong \triangle CBD$. Find each value.

17. $m\angle C$
18. y



Write and solve an equation for each of the following.

23. $\triangle ABC \cong \triangle DEF$. $AB = 2x - 10$, and $DE = x + 20$.
    Find the value of x and AB.
24. $\triangle JKL \cong \triangle MNP$. $m\angle L = (x^2 + 10)^\circ$, and $m\angle P = (2x^2 + 1)^\circ$. What is $m\angle J$?
25. Polygon $ABCD \cong$ polygon $PQRS$. $BC = 6x + 5$, and $QR = 5x + 7$.
    Find the value of x and BC.

Textbook Answers

Vocabulary Apply the vocabulary from this lesson to answer each question.

1. An everyday meaning of *corresponding* is "matching." How can this help you find the *corresponding* parts of two triangles?

1. You find the ∡ and sides that are in the same, or matching, places in the 2 △.

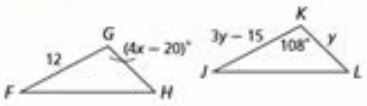
2. If $\triangle ABC \cong \triangle RST$, what angle corresponds to $\angle S$? $\angle B$

Given: $\triangle RST \cong \triangle LMN$. Identify the congruent corresponding parts.

3. $\overline{RS} \cong$? $\overline{LM}$
4. $\overline{TN} \cong$? $\overline{RT}$
5. $\angle S \cong$? $\angle M$
6. $\overline{TS} \cong$? $\overline{NM}$
7. $\angle L \cong$? $\angle R$
8. $\angle N \cong$? $\angle T$

Given: $\triangle FGH \cong \triangle JKL$. Find each value.

9. KL 9
10. x 32



11. Given: E is the midpoint of $\overline{AC}$ and $\overline{BD}$. $\overline{AB} \cong \overline{CD}$, $\overline{AB} \parallel \overline{CD}$

Prove: $\triangle ABE \cong \triangle CDE$

Proof:

Statements	Reasons
1. $\overline{AB} \parallel \overline{CD}$	1. a. ?
2. $\angle ABE \cong \angle CDE$, $\angle BAE \cong \angle DCE$	2. b. ?
3. $\overline{AB} \cong \overline{CD}$	3. c. ?
4. E is the mdpt. of $\overline{AC}$ and $\overline{BD}$.	4. d. ?
5. e. ?	5. Def. of mdpt.
6. $\angle AEB \cong \angle CED$	6. f. ?
7. $\triangle ABE \cong \triangle CDE$	7. g. ?

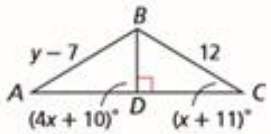
a. Given
b. Alt. Int. ∡ Thm.
c. Given
d. Given
e. $\overline{AE} \cong \overline{CE}$, $\overline{DE} \cong \overline{BE}$
f. Vert. ∡ Thm.
g. Def. of ≅ △

Given: Polygon $CDEF \cong$ polygon $KLMN$. Identify the congruent corresponding parts.

13. $\overline{DE} \cong$? $\overline{LM}$
14. $\overline{KN} \cong$? $\overline{CF}$
15. $\angle F \cong$? $\angle N$
16. $\angle L \cong$? $\angle D$

Given: $\triangle ABD \cong \triangle CBD$. Find each value.

17. $m\angle C$ 31°
18. y 19



Write and solve an equation for each of the following.

23. $\triangle ABC \cong \triangle DEF$. $AB = 2x - 10$, and $DE = x + 20$. Find the value of x and AB. $x = 30$; $AB = 50$
24. $\triangle JKL \cong \triangle MNP$. $m\angle L = (x^2 + 10)^\circ$, and $m\angle P = (2x^2 + 1)^\circ$. What is $m\angle L$? 19°
25. Polygon $ABCD \cong$ polygon $PQRS$. $BC = 6x + 5$, and $QR = 5x + 7$. Find the value of x and BC. $x = 2$; $BC = 17$