

SCAVENGER HUNT



CORRESPONDING PARTS OF CONGRUENT FIGURES

Corresponding Parts of Congruent Figures

Two congruent triangles on every card · no marks on the drawing · the cards check the answers

FREE

ANSWER

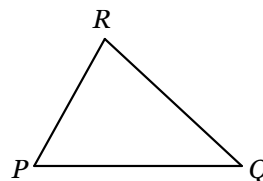
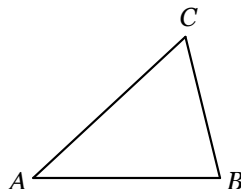
52°

$$\triangle ABC \cong \triangle QRP$$

In $\triangle ABC$, $AB = 9$, $BC = 7$ and $CA = 10$.

How long is QR?

Read the letters in order. The first letters are partners. So are the second and the third.



P

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Scavenger Hunt — how to run it

a full class period

1. **Tape the 16 cards around the room**, in any order. Each card has a large letter in its bottom left corner. Start each group at a *different* one of these eight cards: *P H R N C Q G E*.
2. **Say this once:** *“The drawings have no marks. Use the letters of the statement to find the partner. Eight right answers bring you back to your first card.”*
3. **Each group finds the number, then walks to the card with that number at the top.** Nothing else is needed.

16 cards	pages 3–10, one copy. There are two cards on each sheet. Cut the whole stack once.
Record sheet	page 11, one per student. A box on it shows how to write the two names one above the other.
Answers	pages 12–13, for you only. Do not put them up in the room.

Every card gives the same kind of problem. Two congruent triangles stand side by side with nothing marked, and a congruence statement is printed. Three measures of one triangle are given, and one measure of the other is asked. Four ring cards ask for a side and four for an angle. On every card, matching corners by their place on the page (lower left with lower left, top with top) pairs *no* corner correctly. Only the letters give the right pairs.

Eight of the sixteen cards make the ring. A group reaches the other eight only by a wrong answer, but all the cards look the same. The most common mistake in this lesson is matching corners by where they are on the page. On every ring card, that mistake gives the number at the top of one of the eight other cards. The group does that card, and its answer sends the group back to the card it got wrong. If the group matches by the page again there, it goes one more card back and still does not reach the ring.

The check is the length of the group's list. A clean run is **eight lines**. Each wrong answer adds two. Every card has a line in small type under the question. It tells a group that arrived by a wrong answer what to check. A group that arrived by a right answer skips it. If a group keeps coming back to the same cards, do not give the answer. Ask: *“Write the two names one above the other. Which letter is under the letter you want?”*



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ANSWER

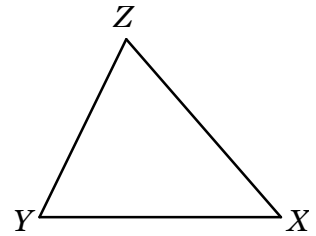
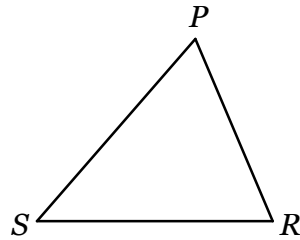
18

$$\triangle PRS \cong \triangle YZX$$

In $\triangle PRS$, $m\angle R = 67^\circ$, $m\angle S = 49^\circ$ and $m\angle P = 64^\circ$.

What is $m\angle Z$?

The order of the letters holds the pairs. Read the statement slowly.



A

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ANSWER

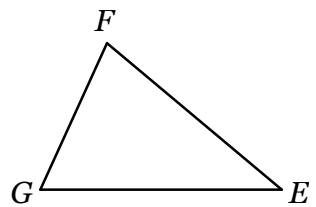
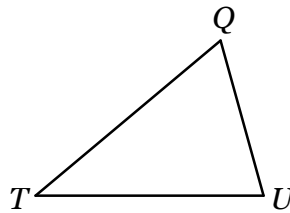
48°

$$\triangle QTU \cong \triangle GEF$$

In $\triangle GEF$, $GE = 18$, $EF = 17$ and $FG = 12$.

How long is TU?

Point to each letter of the side. Find the letter under it in the stack.



B

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ANSWER

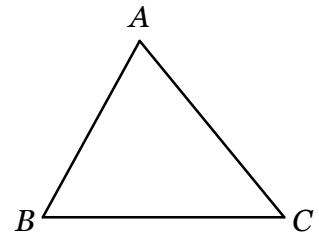
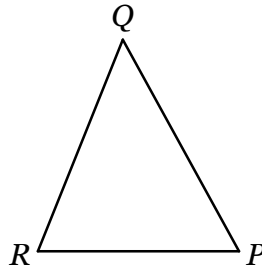
67°

$\triangle PQR \cong \triangle BCA$

In $\triangle PQR$, $QR = 17$, $RP = 15$ and $PQ = 18$.

How long is CA?

A side has two letters. Find the partner of each letter, one at a time.



C

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ANSWER

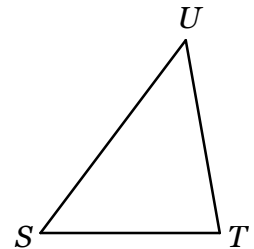
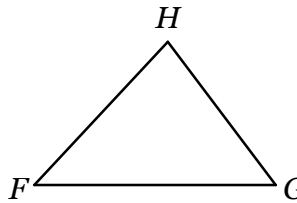
11

$\triangle FGH \cong \triangle UST$

In $\triangle UST$, $m\angle U = 47^\circ$, $m\angle S = 53^\circ$ and $m\angle T = 80^\circ$.

What is $m\angle F$?

Which letter comes first in the second name? It is the partner of the first letter.



D

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ANSWER

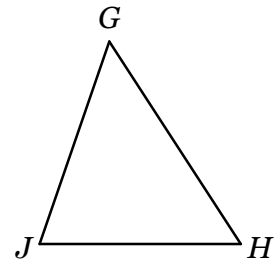
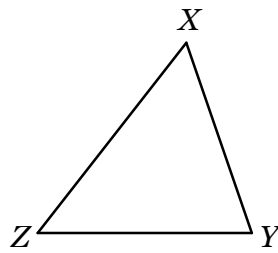
16

$\triangle XYZ \cong \triangle HJG$

In $\triangle XYZ$, $m\angle X = 57^\circ$, $m\angle Y = 71^\circ$ and $m\angle Z = 52^\circ$.

What is $m\angle G$?

The top corner of one triangle is not always the partner of the other top corner.



E

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ANSWER

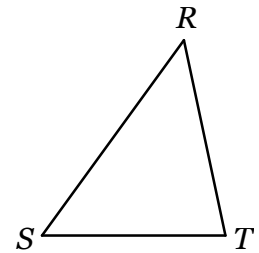
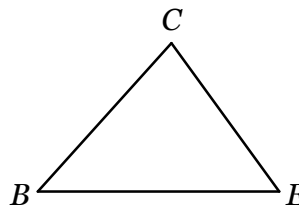
14

$\triangle BCE \cong \triangle RTS$

In $\triangle BCE$, $m\angle B = 48^\circ$, $m\angle C = 78^\circ$ and $m\angle E = 54^\circ$.

What is $m\angle S$?

Does the triangle on the right look like a turn or a flip? The letters still decide.



F

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ANSWER

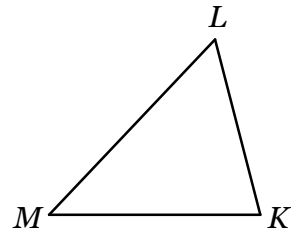
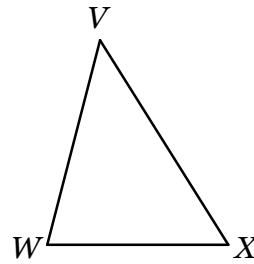
54°

$$\triangle VWX \cong \triangle MKL$$

In $\triangle VWX$, $VW = 14$, $WX = 12$ and $XV = 16$.

How long is LM?

Cover the drawing with your hand. Use only the statement to find the partner.



G

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ANSWER

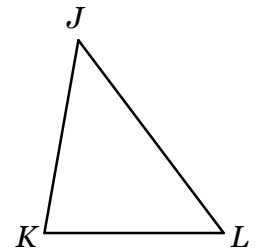
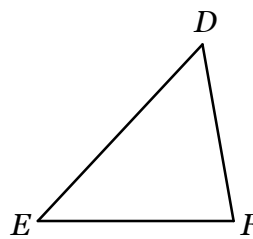
9

$$\triangle DEF \cong \triangle LJK$$

In $\triangle DEF$, $m\angle D = 53^\circ$, $m\angle E = 47^\circ$ and $m\angle F = 80^\circ$.

What is $m\angle J$?

*Do not match corners by their place on the page.
Match them by the letters.*



H

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ANSWER

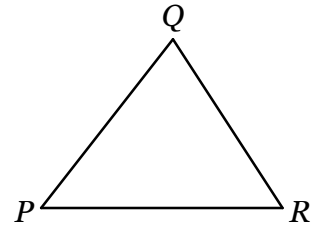
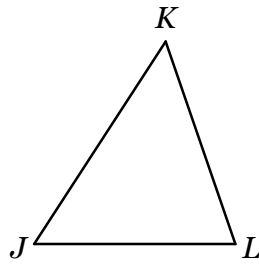
7

$$\triangle JKL \cong \triangle RPQ$$

In $\triangle JKL$, $m\angle K = 52^\circ$, $m\angle L = 71^\circ$ and $m\angle J = 57^\circ$.

What is $m\angle P$?

An angle goes with the angle at the partner corner. Find that corner first.



J

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ANSWER

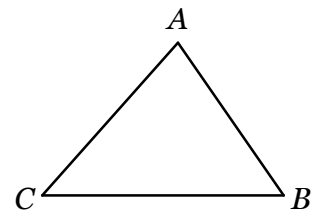
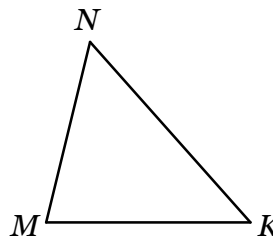
64°

$$\triangle KMN \cong \triangle CAB$$

In $\triangle KMN$, $KM = 11$, $MN = 10$ and $NK = 13$.

How long is BC?

Check the part you found. Its letters come from the other triangle.



K

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ANSWER

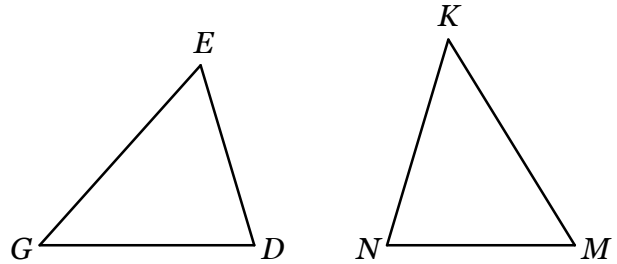
53°

$\triangle DEG \cong \triangle NMK$

In $\triangle DEG$, $DE = 7$, $EG = 9$ and $GD = 8$.

How long is MK?

Say the pairs out loud. First with first, second with second, third with third.



L

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ANSWER

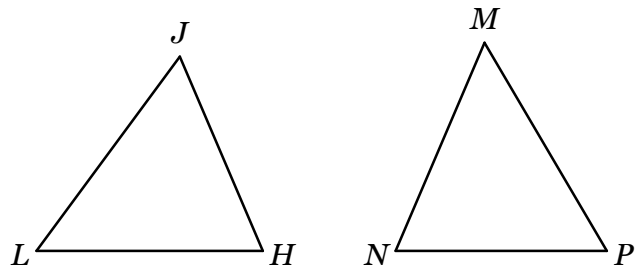
57°

$\triangle HJL \cong \triangle NPM$

In $\triangle HJL$, $HJ = 14$, $JL = 16$ and $LH = 15$.

How long is PM?

Two corners in the same place on the page are not always partners. Check the letters.



M

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ANSWER

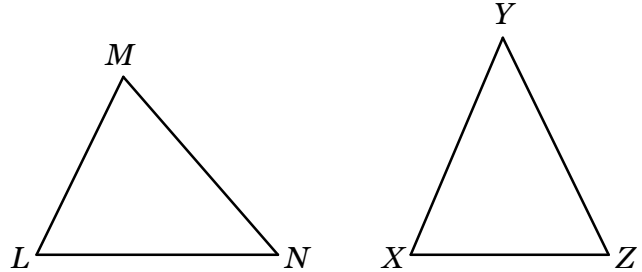
13

$$\triangle LMN \cong \triangle ZXY$$

In $\triangle LMN$, $m\angle M = 67^\circ$, $m\angle N = 49^\circ$ and $m\angle L = 64^\circ$.

What is $m\angle X$?

The drawing can fool you. The statement says which corners go together.



N

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ANSWER

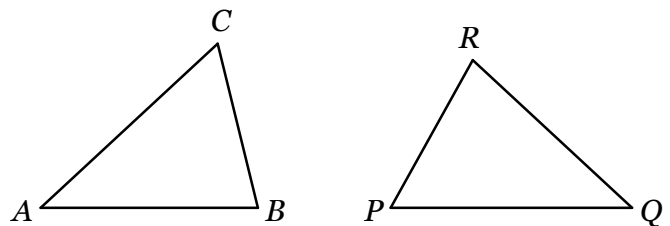
52°

$$\triangle ABC \cong \triangle QRP$$

In $\triangle ABC$, $AB = 9$, $BC = 7$ and $CA = 10$.

How long is QR?

Read the letters in order. The first letters are partners. So are the second and the third.



P

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ANSWER

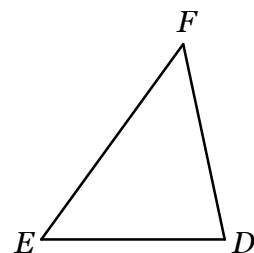
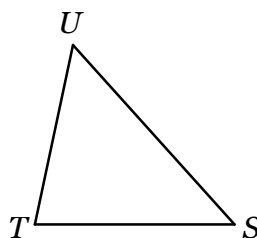
17

$$\triangle STU \cong \triangle FDE$$

In $\triangle FDE$, $m\angle F = 48^\circ$, $m\angle D = 78^\circ$ and $m\angle E = 54^\circ$.

What is $m\angle U$?

Where is the letter in its name? The same place in the other name holds its partner.



Q

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ANSWER

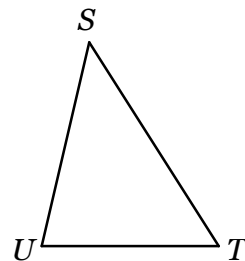
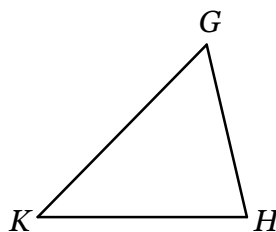
47°

$$\triangle GHK \cong \triangle TUS$$

In $\triangle TUS$, $TU = 11$, $US = 13$ and $ST = 15$.

How long is HK?

Write the two names one above the other. Partners stand in the same column.



R

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Scavenger Hunt — where I went

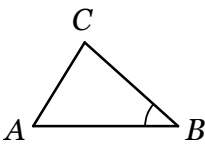
Corresponding parts of congruent figures

Name _____

Period _____

Date _____

Do the card you are at. Fill in one line. Then find the card with your answer at the top. **Use the letters, not the places on the page.** A clean run is eight lines. Each card has a line in small type under the question. **If you are on a card because you went wrong, its line says what to check. If you were right, skip it.**



The stack test. Write the two names one above the other.

$\triangle$	A	B	C
$\triangle$	D	E	F

Letters in the same column are partners. A goes with D. AB goes with DE.
An angle has its corner in the middle: $\angle ABC$ is the angle at B. It goes with $\angle DEF$.

Card letter	The part I need, and its partner	My answer
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

What kind of socks does a congruence statement like best?

Every number stands for a letter. Write the letter for each of your answers in the box above that number. Leave the other boxes empty. Then read the boxes you filled, left to right. **If they do not spell a word, one answer is wrong.**

7 = A 9 = M 11 = M 13 = A 14 = C 16 = T 17 = C 18 = T 47° = H 48° = N 52° = I 53° = G 54° = N 57° = I
64° = H 67° = G

7	9	11	13	14	16	17	18	47°	48°	52°	53°	54°	57°	64°	67°



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Scavenger Hunt — answers

For the teacher

The ring in order. A group may begin anywhere on it. Wherever it begins, eight right answers bring it back to that card.

P → H → R → N → C → Q → G → E → P

What kind of socks does a congruence statement like best? The answer is *MATCHING*. It is read along the boxes of the record sheet, which run from the smallest number to the largest.

Card	Statement	Answer, and why	Wrong answer from matching by place on the page	Joke letter for the number at its top
1 P	$\triangle ABC \cong \triangle QRP$	9. The statement says Q goes with A and R with B, so $QR = AB$.	7, the measure of BC, which is in the same place on the page as QR	I
2 H	$\triangle DEF \cong \triangle LJK$	47°. The statement says J goes with E, so $m\angle J = m\angle E$.	53°, the measure of $\angle D$, which is in the same place on the page as $\angle J$	M
3 R	$\triangle GHK \cong \triangle TUS$	13. The statement says H goes with U and K with S, so $HK = US$.	11, the measure of TU, which is in the same place on the page as HK	H
4 N	$\triangle LMN \cong \triangle ZXY$	67°. The statement says X goes with M, so $m\angle X = m\angle M$.	64°, the measure of $\angle L$, which is in the same place on the page as $\angle X$	A
5 C	$\triangle PQR \cong \triangle BCA$	17. The statement says C goes with Q and A with R, so $CA = QR$.	18, the measure of PQ, which is in the same place on the page as CA	G
6 Q	$\triangle STU \cong \triangle FDE$	54°. The statement says U goes with E, so $m\angle U = m\angle E$.	48°, the measure of $\angle F$, which is in the same place on the page as $\angle U$	C
7 G	$\triangle VWX \cong \triangle MKL$	16. The statement says L goes with X and M with V, so $LM = XV$.	14, the measure of VW, which is in the same place on the page as LM	N
8 E	$\triangle XYZ \cong \triangle HJG$	52°. The statement says G goes with Z, so $m\angle G = m\angle Z$.	57°, the measure of $\angle X$, which is in the same place on the page as $\angle G$	T

Each wrong answer in the table is the number at the top of a card off the ring. Those cards are on the next page.

Scavenger Hunt — the cards off the ring

For the teacher

A group reaches these eight cards only by a wrong answer. The number at the top of each one is the wrong answer from one ring card. Its right answer is the number at the top of that ring card, so the group goes back to the card it got wrong. If the group matches by place on the page again, it goes to another card off the ring. So a second wrong answer never moves a group forward.

Card	Statement	Answer, and why	Wrong answer from matching by place on the page	Joke letter for the number at its top
J	$\triangle JKL \cong \triangle RPQ$	52° . The statement says P goes with K, so $m\angle P = m\angle K$.	57°, the measure of $\angle J$, which is in the same place on the page as $\angle P$	A
L	$\triangle DEG \cong \triangle NMK$	9 . The statement says M goes with E and K with G, so $MK = EG$.	7, the measure of DE, which is in the same place on the page as MK	G
D	$\triangle FGH \cong \triangle UST$	47° . The statement says F goes with U, so $m\angle F = m\angle U$.	53°, the measure of $\angle S$, which is in the same place on the page as $\angle F$	M
K	$\triangle KMN \cong \triangle CAB$	13 . The statement says B goes with N and C with K, so $BC = NK$.	11, the measure of KM, which is in the same place on the page as BC	H
A	$\triangle PRS \cong \triangle YZX$	67° . The statement says Z goes with R, so $m\angle Z = m\angle R$.	64°, the measure of $\angle P$, which is in the same place on the page as $\angle Z$	T
B	$\triangle QTU \cong \triangle GEF$	17 . The statement says T goes with E and U with F, so $TU = EF$.	18, the measure of GE, which is in the same place on the page as TU	N
F	$\triangle BCE \cong \triangle RTS$	54° . The statement says S goes with E, so $m\angle S = m\angle E$.	48°, the measure of $\angle B$, which is in the same place on the page as $\angle S$	C
M	$\triangle HJL \cong \triangle NPM$	16 . The statement says P goes with J and M with L, so $PM = JL$.	14, the measure of HJ, which is in the same place on the page as PM	I

Other mistakes lead to no ring card. A group might put both names in alphabetical order and pair the letters that way. Or it might pick the one printed number that is neither the answer nor the number in the same place on the page. Its answer is then not the number at the top of any ring card.

Guessing does not work. Every simple guessing rule, such as always taking the largest number, answers at most six of the sixteen cards correctly.