

CYU 1.6 Describing Pairs of Angles

Use when you get it right all by yourself

S Use when you did it all by yourself, but made a silly mistake

H Use when you could do it alone with a little help from teacher or peer

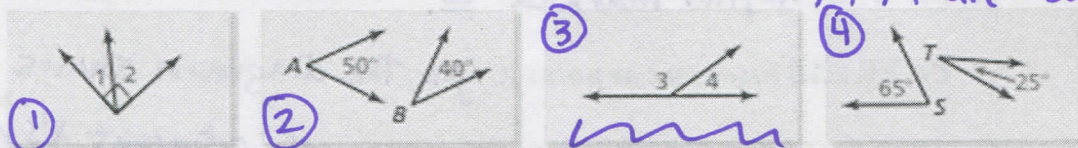
G Use when you completed the problem in a group

X Use when a question was attempted but wrong (get help)

N Use when a question was not even attempted

CONCEPTS	BASIC	INTERMEDIATE	ADVANCED
Adjacent & nonadjacent angles	1, 4	2, 5	12
Complementary & Supplementary angles	1, 3, 11f	2, 5, 7, 9	6, 8, 10
Linear Pair	4	1	12
Review from previous sections	11	11	11

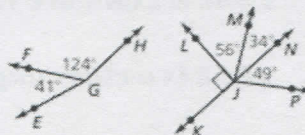
1. Which one of the following does *not* belong with the other three?



1, 2, & 4 are complementary
3 supplementary

2. Name a pair of nonadjacent supplementary angles.

$\angle FGH$ & $\angle LJM$



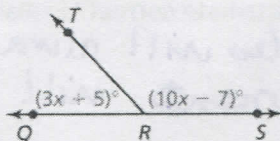
3. $\angle 1$ is a complement of $\angle 2$, and $m\angle 1 = 23^\circ$. Find $m\angle 2$.

$m\angle 1 + m\angle 2 = 90^\circ \Rightarrow 23 + m\angle 2 = 90 \therefore 90 - 23 = m\angle 2$
 $m\angle 2 = 67^\circ$

4. Find the measure of each angle.

linear pair

$3x + 5 + 10x - 7 = 180$
 $13x - 2 = 180$
 $13x = 182$



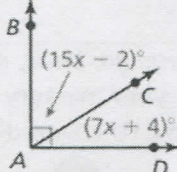
$x = 14$
 $3(14) + 5 = 47^\circ$
 $10(14) - 7 = 133^\circ$

$m\angle QRT = 47^\circ$
 $m\angle SRT = 133^\circ$
 $m\angle QRS = 180^\circ$

5. Find the measure of each angle.

complementary 4's

$15x - 2 + 7x + 4 = 90$
 $22x + 2 = 90$
 $22x = 88$
 $x = 4$



$x = 4$
 $15(4) - 2 = 58^\circ$
 $7(4) + 4 = 32^\circ$

$m\angle BAC = 90^\circ$
 $m\angle CAD = 58^\circ$
 $m\angle BAD = 32^\circ$

6. $\angle EFG$ and $\angle LMN$ are supplementary angles, $m\angle EFG = (3x + 17)^\circ$, and $m\angle LMN = (\frac{1}{2}x - 5)^\circ$.

$8 = 180$
 $2 [3x + 17 + \frac{1}{2}x - 5 = 180]$
 $6x + 34 + x - 10 = 360$
 $7x + 24 = 360$
 $7x = 336$

$x = 48$
 $3(48) + 17 = 161^\circ$
 $\frac{1}{2}(48) - 5 = 19^\circ$

$m\angle EFG = 161^\circ$
 $m\angle LMN = 19^\circ$

7. The measure of an angle is nine times the measure of its complement. Find the angle and its complement's measure.

$$x = 9(90 - x) \quad x = 81$$

$$x = 810 - 9x$$

$$10x = 810$$

$$81^\circ, 9^\circ$$

8. The measure of an angle is one-fourth the measure of its complement. Find the angle and its complement's measure.

$$x = \frac{1}{4}(90 - x) \rightarrow 5x = 90$$

$$4x = 90 - x \rightarrow x = 18$$

$$18^\circ, 72^\circ$$

9. Write and solve an algebraic equation to find the measure of each angle based on the given description. The measure of one angle is 3° more than half the measure of its supplement.

$$x = \frac{1}{2}(180 - x) + 3$$

$$62^\circ, 118^\circ$$

$$2x = 180 - x + 6 \Rightarrow 3x = 186 \Rightarrow x = 62$$

10. **Sometimes, Always, or Never:** If two complementary angles are congruent, then the measure of each angle is 45° .

always: $45 + 45 = 90$

11. State whether you can conclude that each statement is true based on the figure. EXPLAIN your reasoning.

a. $\overline{CA} \cong \overline{AF}$. **yes; marked \cong**

b. **Points C, A, and F are collinear.** **yes, Point A lies on \overline{CF}**

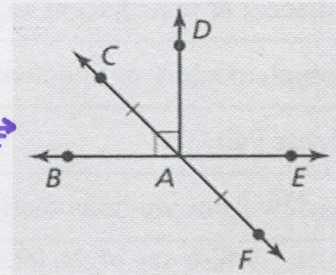
c. $\angle CAD \cong \angle EAF$. **no, no relationship & values unknown.**

d. $\overline{BA} \cong \overline{AE}$. **no, not marked \cong .**

e. \overline{CF} , \overline{BE} , & \overline{AD} intersect at point A. **yes, the diagram shows it.**

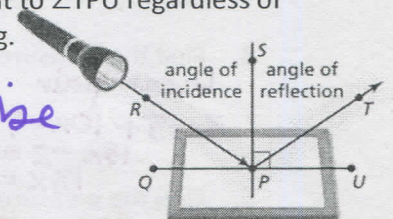
f. $\angle BAC$ & $\angle CAD$ are complementary angles. **yes, adjacent \angle 's marked with a 90° angle**

g. $\angle DAE$ is a right angle. **yes; $\angle BAD$ & $\angle DAE$ are a linear pair $\angle BAD$ is marked right.**



12. Light from a flashlight strikes a mirror and is reflected so that the angle of reflection is congruent to the angle of incidence. Your classmate claims that $\angle QPR$ is congruent to $\angle TPU$ regardless of the measure of $\angle RPS$. Is your classmate correct? Explain your reasoning.

yes, the two angles will always be \cong . So their complement will always be \cong too.



CYU Reflection: How far can you go: basic, intermediate, or advanced?

Rate your mastery level!

How confident are you with the skills this CYU covered? Circle the score you would give yourself.

● — ● — ● — ● — ● — ● — ●

1	2	3	4	5	6	7	8
Basic		Intermediate			Advanced		Solved ALL!

