H. Geometry Topic 4—Review **Name:** Answers **Hour:** ____

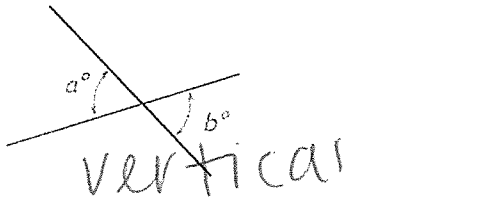
1. What is the difference between inductive and deductive reasoning?

based on observation ↓ valid reasoning

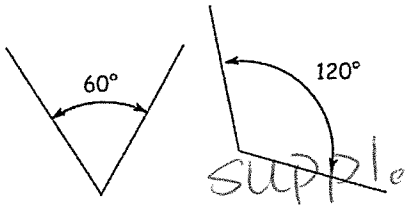
2. What is the difference between a postulate and a theorem?

postulate is a statement assumed to be true, while a theorem is true and proven.

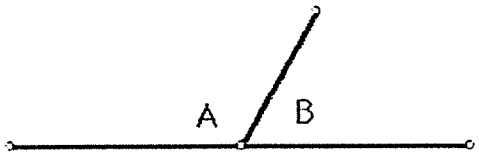
3. Identify the angles below as: complementary, supplementary, vertical, linear pair,



vertical

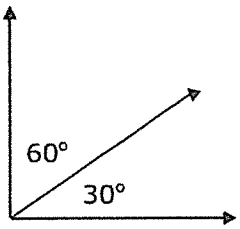


supple



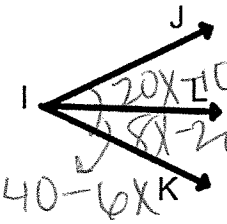
A + B = 180

linear pair
supplo



linear pair
complementary

4. Solve for x.



$20x-10$ $8x-20$ $140-6x$

$28x-30=140-6x$
$34x=170$
$x=5$

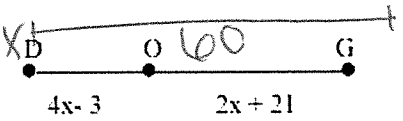
$m\angle JIL = 20x - 10$

$m\angle LIK = 8x - 20$

$m\angle JIK = 140 - 6x$

5. Solve for x, DO, and OG.

Given the figure and DG = 60 ft.



$4x-3+2x+21=60$
$6x+18=60$
$6x=42$
$x=7$

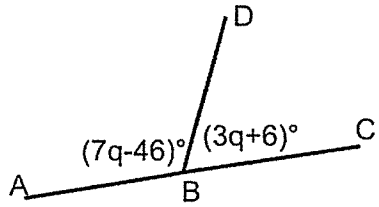
x = 7

DO = 25

OG = 35

6. Solve for q.

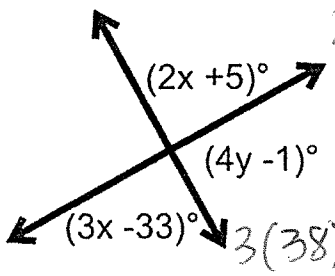
q = 22



$7q-46+3q+6=180$
$10q-40=180$
$10q=220$
$q=22$

7. Solve for x and y.

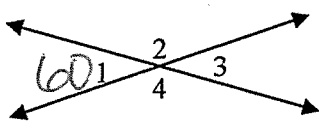
x = 38 y = 25



$2x+5=3x-33$
$5=x-33$
$x=38$

$3(38)-33+4y-1=180$
$114-33+4y-1=180$
$4y=100$

8. In the diagram shown, $\angle 1$ has a measure of $60°$.



List the vertical Pairs: $\angle 1$ & $\angle 3$; $\angle 2$ & $\angle 4$

List the linear Pairs: $\angle 1$ & $\angle 2$; $\angle 3$ & $\angle 4$

$m\angle 1 = 60°$

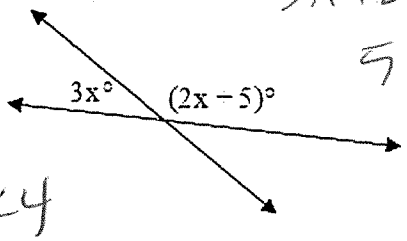
$m\angle 2 =$ 120°

$m\angle 3 =$ 60°

$m\angle 4 =$ 120°

9. Solve for x.

x = 35

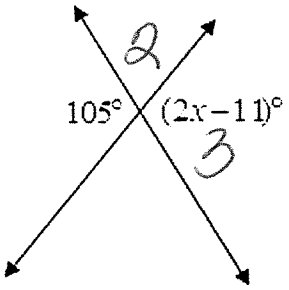


$3x + 2x + 5 = 180$

$5x = 175$

$x = 35$

10. Solve for x. Find the m $\angle 2$ and m $\angle 3$.



$x =$ 58

$m\angle 2 =$ 75°

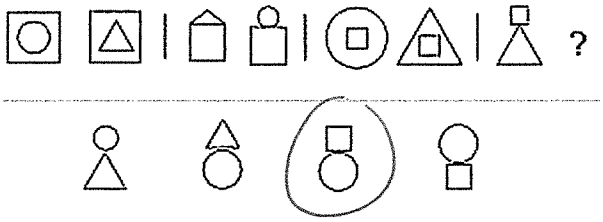
$m\angle 3 =$ 105°

$2x - 11 = 105$

$2x = 116$

$x = 58$

11. Look carefully at the pattern. Which of the 4 shapes below would complete the pattern?



Write a proof (with statements and reasons) for solving each of the equations below.
Use a 2-column proof—it is easier to organize from scratch. You may not need all the lines provided for the proof.

12. Given: $4x = 12x + 32$ Prove: $x = -4$

Statements	Reasons
$4X = 12X + 32$	Given
$-8X = 32$	subtr prop.
$X = -4$	division prop.

13. Given: $\frac{1}{4}x + 10 = 2$ Prove: $x = -32$

Statements	Reasons
$1/4X + 10 = 2$	Given
$1/4X = -8$	subtr prop.
$X = -32$	mult. prop.

14. Given: $-3(x+2) = 16 - x$ Prove: $x = -11$

Statements	Reasons
$-3(X+2) = 16 - X$	Given
$-3X - 6 = 16 - X$	Dist. Prop
$-2X - 6 = 16$	add. prop.
$-2X = 22$	add prop.
$X = -11$	division prop