

### UNIT 6 and 7 – System of Equations and Congruency Assessment

Name Exemplar PER \_\_\_\_\_ DATE \_\_\_\_\_

ACED2	AREIC6	GCO7	GCO8

#### Computation

4	3	2	1
Response has no recall errors, <i>minimal</i> procedural errors* and no conceptual errors**	Response has no recall errors, minimal procedural errors and <i>minimal</i> conceptual errors	Response has no recall errors, but has several procedural errors <u>OR</u> several conceptual errors	Recall errors exist <u>OR</u> Steps taken are not related to problem <u>OR</u> Response left blank

#### Written Responses

4	3	2	1
Response is written in a complete sentence and uses appropriate academic vocab	Response is written in a complete sentence, and minimal errors exist in use of academic vocab	Response is not written in a complete sentence <u>OR</u> no academic vocab	Concept of response is not related to problem <u>OR</u> Response is left blank

\***Procedural errors** are mistakes made in the math

\*\***Conceptual errors** are mistakes made in the steps one take

2/1

## 1. (ACED2) Explain your answer choice in the space below.

Lisa has a job working for  $\$16$  per hour. She takes the bus to and from work, which costs a total of  $\$3.50$  each day she works. Since her work schedule varies she doesn't work the same number of hours or days each week.

Which equation can be used to find  $m$ , the total amount in dollars Lisa earns in a month if she works  $d$  days and  $h$  hours?

A.  $d = 16h - 3.5$  True, but does not calculate the month

$16 \times h =$  the amount she makes each day

B.  $m = -3.5d + 16h$

$16h - 3.5 =$  the amount she keeps each day

C.  $m = d(-3.5 + 16h)$

(after the bus rides)

D.  $m = 16d - 3.5h$

C is the correct equation since we multiply  $16h$  and  $-3.5$  by  $d$  since she both makes money and spends money each day she works in a month.

## 2. (ACED2) Explain your answer choice in the space below.

Katelyn starts a job that pays  $\$8.50$  per hour. Katelyn's manager says that if her job reviews are favorable, she can expect annual pay rate increases of  $\$0.75$ . Which equation represents the relationship between  $y$ , and  $p$ ?

A.  $y = 0.75p + 8.50$

B.  $p = 0.75y + 8.50$

C.  $p = 8.50y + 0.75$

D.  $y = 8.50p + 0.75$

The starting value is  $8.50$  since that's her initial pay rate. That value increases by  $0.75$  a year so we must multiply  $0.75$  by the number of years she gets a favorable review.

## 3. (AREIC6) For the problem below, explain your answer in the space provided.

Consider the equation  $3x - 2y = 6$ . If possible, find a second linear equation to create a system of equations that has...

$$\begin{aligned} -2y &= -3x + 6 \\ y &= 3/2x - 3 \end{aligned}$$

a. One solution.

$$y = 3x - 2$$

Many answers exist!

When graphed these equations will intersect once since their slopes are different

b. No solutions.

$$y = 3/2x + 5$$

When graphed, these equations will never intersect because they have the same slope but different  $y$ -intercepts.

## 4. (AREIC6) For the problem below, show your work and explain your answer in the space below.

A garden store has two sizes of plants for sale.

- Plants in small pots cost \$3.50
- Plants in big pots cost \$6.00
- One day 18 plants were sold for a total of \$80.50.

$x$  = # of small pots sold

$y$  = # of big pots sold

How many plants in BIG pots were sold at the store that day?

Equation 1:  $x + y = 18$

Equation 2:  $3.50x + 6y = 80.50$

$$\begin{array}{r} -6x - 6y = -108 \\ 3.50x + 6y = 80.50 \\ \hline -2.50x = 27.5 \\ -2.50 \quad -2.50 \\ \hline x = 11 \end{array}$$

$$x + y = 18$$

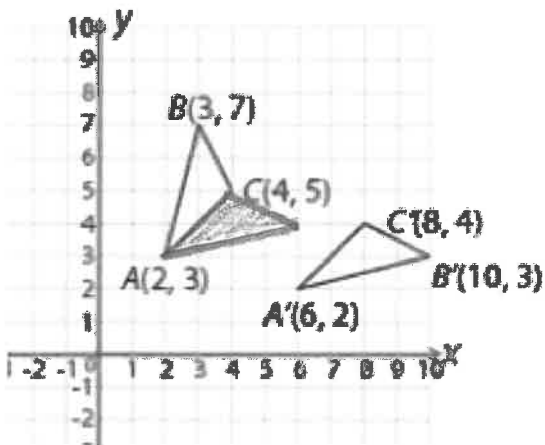
$$11 + y = 18$$

$$y = 7$$

7 Big pots were Sold that day

## 5. (GC07)

The design for a building has two triangular windows placed on a coordinate plane, as shown below.

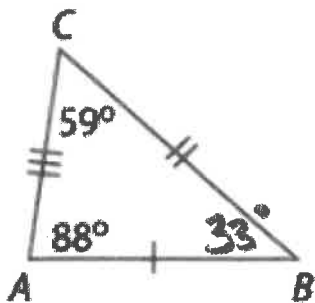


Use rigid motions to explain why the two windows are congruent.

Reflect  $\triangle ABC$  over  $\overline{CA}$  and then translate it four units to the right and one unit down. Doing so will show all corresponding sides and angles line up and are thus congruent.

## 6. (GCO8)

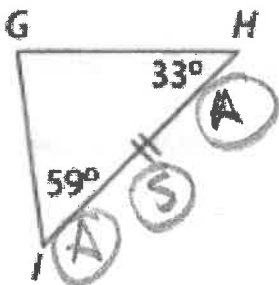
Triangle  $\triangle ABC$  is shown below.



$$\begin{array}{r} 59 \\ + 88 \\ \hline 147 \end{array} \quad \begin{array}{r} 180^\circ \\ - 147^\circ \\ \hline 33^\circ \end{array}$$

Determine if Triangle ABC is congruent to either of the triangles below. For each triangle, write a congruency statement and cite the Theorem that proves their congruency.

a.)



Congruency Statement

$$\underline{\triangle ABC \cong \triangle GHI}$$

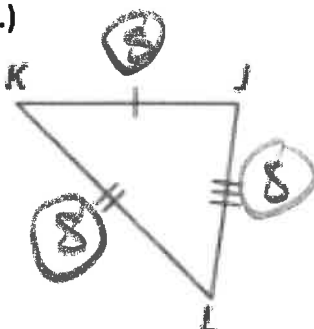
Congruency Theorem

ASA

Series of Rigid Transformations

Reflect  $\triangle ABC$  over  $\overline{AB}$  and then translate down.

b.)



Congruency Statement

$$\underline{\triangle ABC \cong \triangle KJL}$$

Congruency Theorem

SSS

Series of Rigid Transformations

Rotate  $\triangle ABC$   $180^\circ$  around its center and then translate down.