

4- 1 - Geometry Scott Foresman Integrated Math

Agenda

Objective: SWBAT...

Discover relationships between **reflected** images

Define * perpendicular bisector * line of reflection *

* transformation * image * pre-image *

Language Objective: SWBAT... explain their observations to the discovery activity by sharing 2 conjectures with a partner in a Think...Pair...Share

1) Do Now: Discover with Patty Paper (9.3 - p. 150)

Results: Think...Pair...Share...

2) Introduction to new vocabulary

3) Notation

4) Practice Problems (with Patty Paper)

Teaching Aid 36 & 37

5) Exit ticket

HW: Lesson Master 4-1 A

Do Now Reflection

Reflection

Guided Investigation

Materials:

9.3 worksheet, patty paper, (protractor/ruler)

Directions:

- Follow the Step 1-4 on your worksheet.
- Think... Pair... Share... Questions 62 & 69

Results:

62) In a reflection transformation, the distance between any point and its image is

equidistant to the line of reflection

63) The line of reflection is the

Perpendicular bisector of each segment connecting a point with its corresponding point in the reflected image.

Vocabulary

Perpendicular Bisector: a line or segment that contains the midpoint of another segment, and is perpendicular to the segment

Preimage: The "original" figure

Image: The transformation of the preimage

Reflecting Line (Line of reflection): A pre-image is reflected over this line to create an image

Transformation: a correspondence between two sets of points (aka. "mapping")

Notation

$T(P) \rightarrow$ " _____ "

" $r(A) = A' \curvearrowright$ "

" $r_m(P) = Q \curvearrowright$ "

Practice Problems

- Teaching Aid 36 & 37

Follow the instructions on the
worksheet.

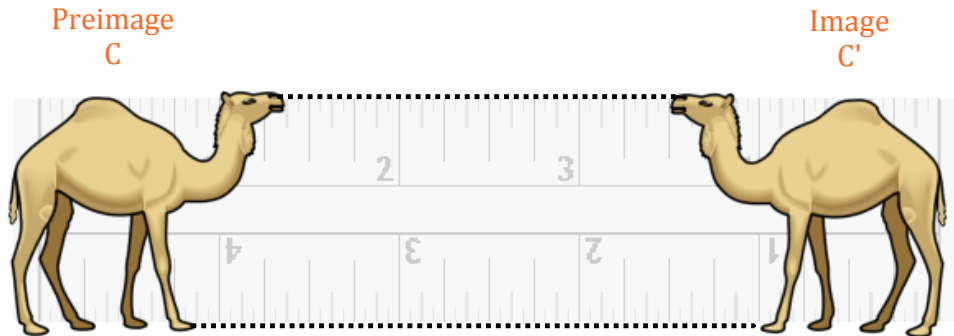
Use the patty paper!

____/4

Name _____

Exit Ticket

Camel C has been reflected. Draw in the **Line of reflection**.
Your line must be *accurate* for full credit.

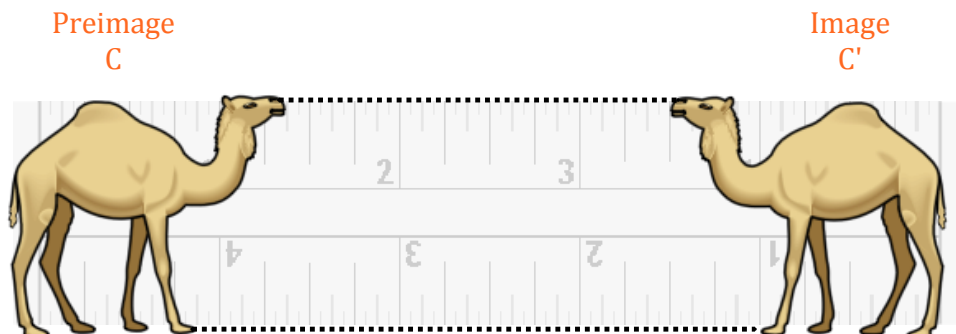


____/4

Name _____

Exit Ticket

Camel C has been reflected. Draw in the **Line of reflection**.
Your line must be *accurate* for full credit.



Homework

Name _____

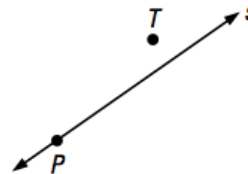
LESSON MASTER



Questions on SPUR Objectives
See pages 238–241 for objectives.

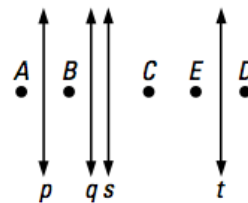
Skills Objective A

1. a. Draw $r_s(P)$.
- b. Draw $r_s(T)$.

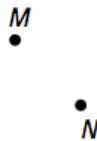


2. Use the figure at the right.

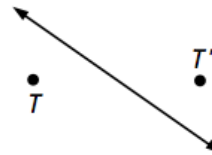
- a. $r_p(A) = \underline{\hspace{2cm}}$
- b. $r_s(C) = \underline{\hspace{2cm}}$
- c. $r_t(D) = \underline{\hspace{2cm}}$
- d. $r_s(E) = \underline{\hspace{2cm}}$



3. Draw the reflecting line p so that $r_p(M) = N$.



4. Can $r_\ell(T) = T'$? Give a reason for your answer.



Properties Objective E

In 5–8, true or false.

5. If $r_s(P) = P'$, then s is the perpendicular bisector of PP' . _____
6. If P is on ℓ , then $r_\ell(P)$ does not exist. _____
7. If $r_{\overleftrightarrow{MN}}(P) = P'$, then $\overline{PP'}$ bisects MN . _____
8. A reflection is a transformation that maps a preimage onto an image. _____

Representations Objective K

In 9–12, give the coordinates of the image.

9. $r_{x\text{-axis}}(-7, 4)$ _____
10. $r_{y\text{-axis}}(2, 1)$ _____
11. $r_{x\text{-axis}}(-6, 0)$ _____
12. $r_{x\text{-axis}}(m, n)$ _____

Results:

62) In a reflection transformation, the distance between any point and its image is equidistant to the line of reflection

63) The line of reflection is the Perpendicular bisector of each segment connecting a point with its corresponding point in the reflected image.

Vocabulary

Perpendicular Bisector: a line or segment that contains the midpoint of another segment, and is perpendicular to the segment

Preimage: The "original" figure

Image: The transformation of the preimage

Reflecting Line (Line of reflection): A pre-image is reflected over this line to create an image

Transformation: a correspondence between two sets of points (a.k.a. "mapping")

Notation

transformation
performed on

$$T(P) \rightarrow \underline{\text{" } T \text{ of } P \text{ "}}$$

rotation
performed on

Point A

rotational image of
A (a.k.a. "A prime")

$$r(A) = A' \quad \checkmark$$

$$\underline{\text{" } R \text{ of } A \text{ is } A \text{ prime "}}$$

reflection of
point P
over line m

$$r_m(P) = Q \quad \checkmark$$

$$\underline{\text{" } R \text{ of } P \text{ over } m \text{ is } Q \text{ (or } P \text{ prime) "}}$$

Name _____

LESSON MASTER

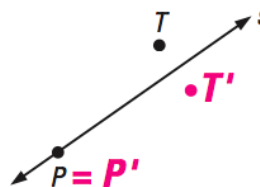
**4-1
A**

Questions on SPUR Objectives
See pages 238–241 for objectives.

Skills Objective A

1. a. Draw $r_s(P)$.

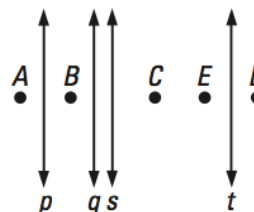
b. Draw $r_s(T)$.



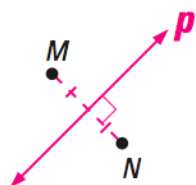
2. Use the figure at the right.

a. $r_p(A) = \underline{B}$ b. $r_s(C) = \underline{B}$

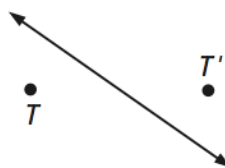
c. $r_t(D) = \underline{E}$ d. $r_s(E) = \underline{A}$



3. Draw the reflecting line p so that $r_p(M) = N$.



4. Can $r_\ell(T) = T'$? Give a reason for your answer.



No; $\overline{TT'}$ is not perpendicular to ℓ .

Properties Objective E

In 5–8, true or false.

5. If $r_s(P) = P'$, then s is the perpendicular bisector of $\overline{PP'}$.

true

6. If P is on ℓ , then $r_\ell(P)$ does not exist.

false

7. If $r_{\overleftrightarrow{MN}}(P) = P'$, then $\overline{PP'}$ bisects \overleftrightarrow{MN} .

false

8. A reflection is a transformation that maps a preimage onto an image.

true

Representations Objective K

In 9–12, give the coordinates of the image.

9. $r_{x\text{-axis}}(-7, 4) = \underline{(-7, -4)}$

10. $r_{y\text{-axis}}(2, 1) = \underline{(-2, 1)}$

11. $r_{x\text{-axis}}(-6, 0) = \underline{(-6, 0)}$

12. $r_{x\text{-axis}}(m, n) = \underline{(m, -n)}$