The student will use the relationships between angles formed by two lines cut by a transversal to …
- ☐ Determine whether two lines are parallel;
- ☐ Verify the parallelism using algebraic and coordinate methods, as well as deductive proofs; and
- ☐ Solve real-world problems involving angles formed when parallel lines are cut by a transversal.

Parallel lines have the same _____.
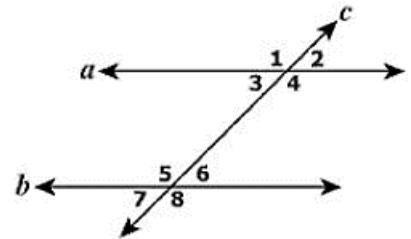
A transversal is

Alternate Interior

Alternate Exterior

Corresponding

Same-side Interior (Consecutive)
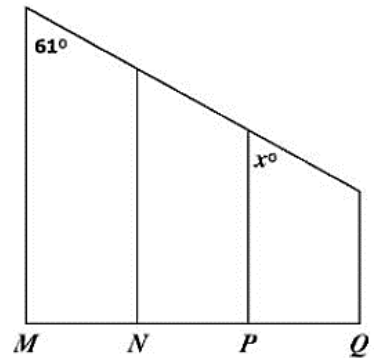
IN-CLASS PRACTICE

1. In the figure shown, parallel lines a and b are intersected by line c. Which pair of angles is NOT supplementary?

A) $\angle 1$ and $\angle 6$ C) $\angle 2$ and $\angle 7$
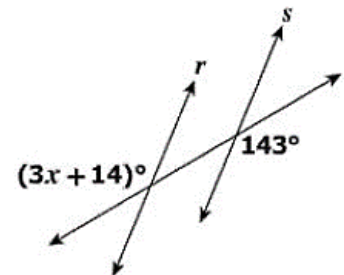B) $\angle 3$ and $\angle 8$ D) $\angle 4$ and $\angle 6$

2. This figure shows parallel stair railings through points M, N, P, and Q. What is the value of x?
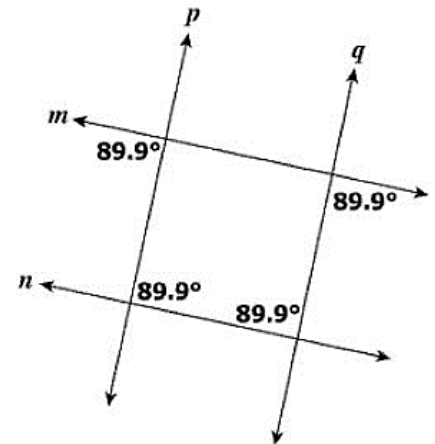
$$x = \rule{2cm}{0.4pt}$$

3. Lines r and s are cut by a transversal. What value of x proves that $r \| s$?
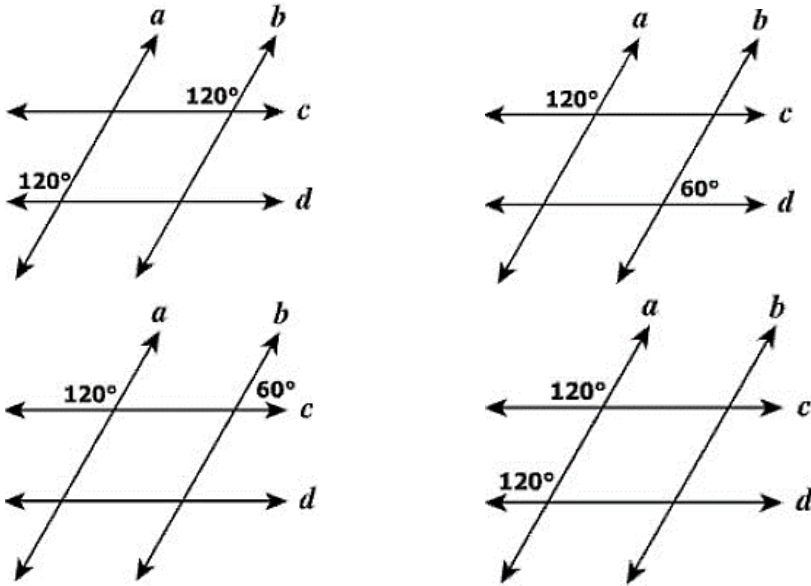
$$x = \rule{2cm}{0.4pt}$$

$(3x + 14)°$ $143°$

4. Four lines and four congruent angles are identified in the diagram. Which statement must be true?

A) Only $m\|n$
B) Only $p\|q$
C) $p\|q$ and $m\|n$
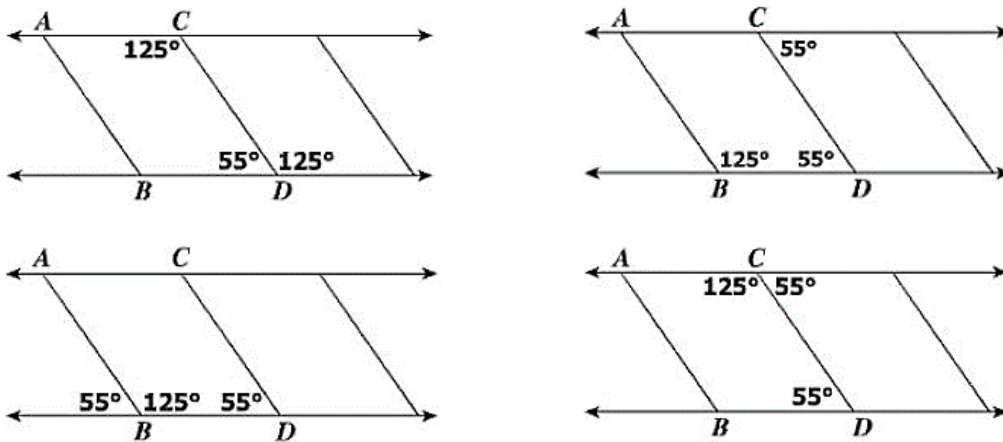D) No pair of lines is parallel.

$89.9°$ $89.9°$ $89.9°$ $89.9°$

1. Which diagram shows a pair of angle measures that prove lines *a* and *b* are parallel?


2. The diagrams represent the stripes used to mark parking spaces on a lot. Based only on the information given, which diagram could be used to prove that $\overline{AB}||\overline{CD}$ and $\overline{AC}||\overline{BD}$?
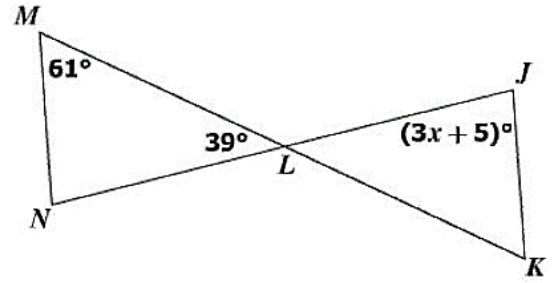

3. The figure represents a ramp with handrails. Segments *AB* and *DE* are parallel to segment *GH*. Segments *BC* and *EF* are parallel to segment *HJ*. Segments *AG* and *BH* are parallel to segment *CJ*. If $m\angle JCB = 115°$, what is $m\angle CBA$?
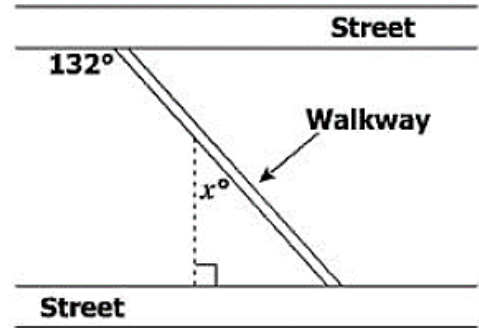

$$m\angle CBA = \underline{\qquad}$$
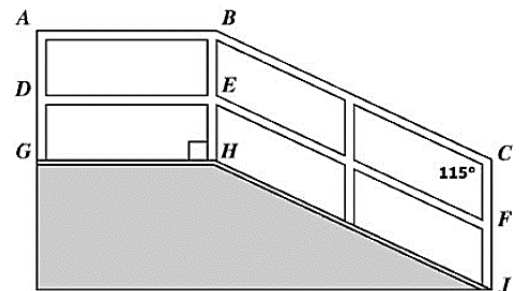
4. The figure shows $\overline{JN}$ and $\overline{KM}$ intersecting at L. What value of x proves that $\overline{JK}||\overline{MN}$?

M

$61°$

$39°$

$(3x+5)°$

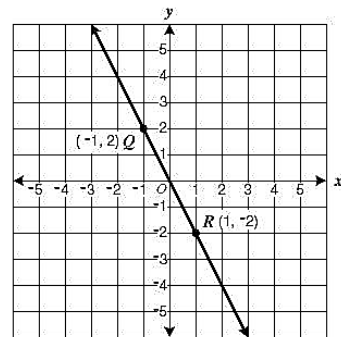L

N

J

K

$x =$ _____

5. A diagonal walkway cuts through a park bordered by two parallel streets. The parks department plans to add an additional walkway as indicated by the dashed line segment in the figure. What is the value of x?

Street

$132°$

Walkway

$x°$

Street

$x =$ _____

6. Which two points determine a line parallel to $\overleftrightarrow{QR}$?

A) (1, 4) and (5, 2)

B) (2, 1) and (-2, -1)

C) (-1, -1) and (-2, -3)

D) (1, 1) and (2, -1)

y

$(-1, 2)\,Q$

$R\,(1,\,-2)$

x

7. Line n intersects three lines forming the angles shown.

Which two lines are parallel?

n

$130°$ p

$40°$ q

$50°$ r

$35°$ s

_____ and _____
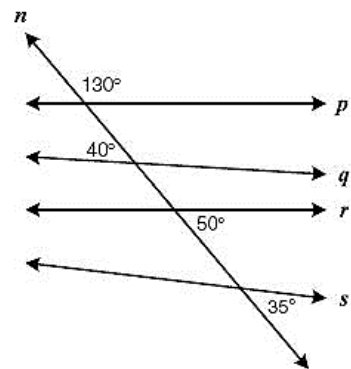
8. Line y and z are cut by a transversal. For what value of x is $y||z$?

$77°$

y

$x°$

z