

Worksheet Parallel Lines #3

1) Statements

- 1) $\angle 1 \cong \angle 2$
- 2) $\angle 3 \cong \angle 1$
- 3) $\angle 2 \cong \angle 3$
- 4) $\overline{AB} \parallel \overline{DE}$

Reasons

- 1) Given
- 2) Given
- 3) Trans. prop of \cong
- 4) Since alt. int. \angle 's are \cong , then the lines are \parallel

2) Statements

- 1) $\overline{JO} \parallel \overline{KN}$
 $\angle 1 \cong \angle 2$
 $\angle 3 \cong \angle 4$
- 2) $\angle 1 \cong \angle 3$

Reasons

- 1) Given
- 2) IF two \parallel lines are cut by a trans, then corresp. \angle 's are \cong
- 3) Trans prop of \cong
- 4) Since corresp. \angle 's are \cong , then the lines are \parallel

3) $\angle 2 \cong \angle 4$

4) $\overline{NO} \parallel \overline{AN}$

3) Statements

- 1) $\overline{XY} \parallel \overline{TZ}$
 \overline{XZ} bisects $\angle TXY$
- 2) $\angle TXZ \cong \angle YXZ$
- 3) $\angle TZX \cong \angle YZX$
- 4) $\angle YXZ \cong \angle TZX$

Reasons

- 1) Given
- 2) Def. of \angle bisector
- 3) Def. of \angle bisector
- 4) IF two lines are \parallel & cut by a trans, then alt. int. \angle 's are \cong
- 5) Trans. Prop. of \cong
- 6) Since alt. int. \angle 's are \cong , then the lines are \parallel .

5) $\angle TXZ \cong \angle YZX$

6) $\overline{XT} \parallel \overline{YZ}$

4) Statements

- 1) $\overline{BA} \parallel \overline{CD}$
- 2) $\angle 1 \cong \angle 3$
- 3) $\angle 1 \cong \angle 2$

- 4) $\angle 2 \cong \angle 3$
- 5) $\overline{BC} \parallel \overline{DE}$

Reasons

- 1) Given
- 2) Given
- 3) IF two lines are \parallel + cut by a trans, then alt. int. \angle 's are \cong
- 4) Trans. prop of \cong
- 5) Since alt. int. \angle 's are \cong , then the lines are \parallel .

5) Statements

- 1) $\overline{NR} \parallel \overline{HP}$
- 2) $\angle 1 \cong \angle 4$
- 3) $\angle 2 \cong \angle 3$
- 4) $\angle 3 \cong \angle 4$

- 5) $\angle 1 \cong \angle 2$
- 6) $\overline{NR} \parallel \overline{BP}$

Reasons

- 1) Given
- 2) Given
- 3) Given
- 4) IF two lines are \parallel + cut by trans, then alt. int. \angle 's are \cong
- 5) Trans prop of \cong
- 6) Since corresp. \angle 's are \cong , then the lines are \parallel .

①

$$\begin{aligned} \overline{BC} &\parallel \overline{AE} \\ \angle 1 &\cong \angle 3 \\ \angle 2 &\cong \angle 3 \\ \angle 2 &\cong \angle 1 \\ \overline{BA} &\parallel \overline{CD} \end{aligned}$$

Given
 Given
 Alt int \angle s
 Transitive
 $\angle 1 + \angle 2$ since
 corresponding \angle s
 \cong

②

$$\begin{aligned} \overline{NY} &\text{ bisects } \angle XNT \\ \angle 1 &\cong \angle 2 \\ \angle 1 &\cong \angle 3 \\ \angle 3 &\cong \angle 2 \\ \overline{XY} &\cong \overline{NT} \end{aligned}$$

Given
 Given
 def of \angle bisector
 Transitive
 Since alt
 interior \angle s \cong

③

$$\begin{aligned} \angle 1 &\cong \angle 2 \\ \angle 3 &\cong \angle 4 \\ \angle 2 &\cong \angle 3 \\ \angle 1 &\cong \angle 4 \\ \overline{XY} &\parallel \overline{AB} \end{aligned}$$

Given
 Given
 Vertical
 Transitive
 Since Alt int
 \angle s are \cong

④

$$\begin{aligned} \overline{AE} &\parallel \overline{BF} \\ \angle 1 &\cong \angle 3 \\ \angle 1 &\cong \angle 2 \\ \angle 2 &\cong \angle 3 \\ \overline{AB} &\parallel \overline{EF} \end{aligned}$$

Given
 Given
 Corresponding \angle s \cong
 Transitive
 Since Alt. int.
 \angle s are \cong

⑤

$$\begin{aligned} \angle 1 &\cong \angle 2 \\ \angle 3 &\cong \angle 4 \\ b &\parallel c \\ c &\parallel d \\ b &\parallel d \end{aligned}$$

Given
 Given
 Since corresponding
 angles are \cong
 since alt
 int. \angle s are \cong
 Transitive