

UNIT 7 - PROVE / JUSTIFY REVIEW

NAME: Key

Which property of equality justifies the following sequence of statements?

$$\text{If } 3x + 2y = 72$$

$$\text{and } 2y = 3z,$$

$$\text{then } 3x + 3z = 72$$

- ☐ Addition Property
- ☐ Multiplication Property
- ☒ none of the above

- ☐ Subtraction Property
- ☐ Division Property
- ☐ Addition Property
- ☒ Division Property

Which property of equality justifies proceeding from step 3 to step 4 when solving the equation below?

$$\text{Step 1: } 4(x + 2) = -16$$

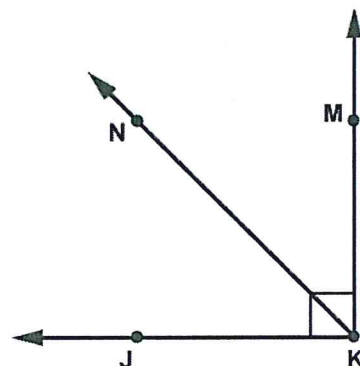
$$\text{Step 2: } 4x + 8 = -16$$

$$\text{Step 3: } 4x = -24$$

$$\text{Step 4: } x = -6$$

- ☐ Subtraction Property
- ☒ none of the above

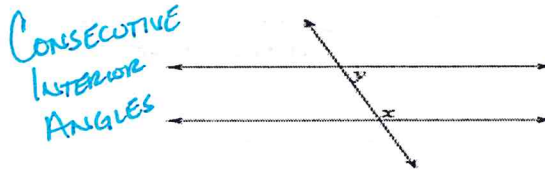
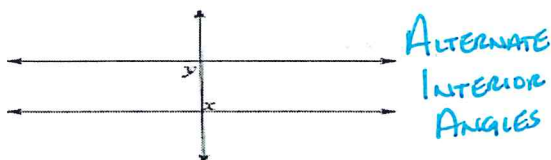
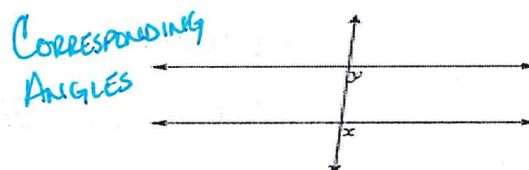
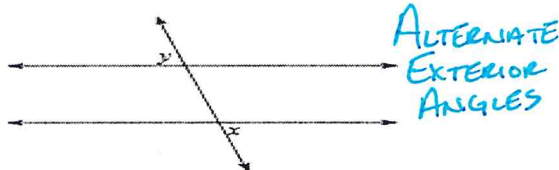
In the diagram $\overline{KN}$ bisects $\angle JKM$, and $\angle JKM$ forms a right angle. Which of the following can you deduce about $m\angle JKN$? Select all that apply.



- ☒ $m\angle JKN < 90^\circ$
- ☒ $m\angle JKN = m\angle MKN$

- ☐ $m\angle JKN = 90^\circ$
- ☒ $m\angle JKN = 45^\circ$

Identify each pair of angles as corresponding, alternate interior, alternate exterior, or consecutive interior.



What justification proves that the interior angle sum of a triangle is 180° ?

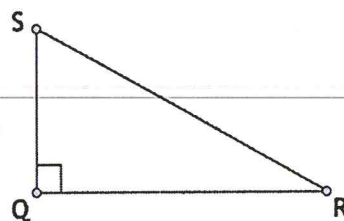
TRIANGLE SUM THEOREM

What does the Exterior Angle Theorem say?

THE EXTERIOR ANGLE OF A TRIANGLE IS EQUAL TO THE SUM OF THE REMOTE INTERIOR ANGLES.

Given: $\triangle QSR$ is a right triangle with a right angle at Q .

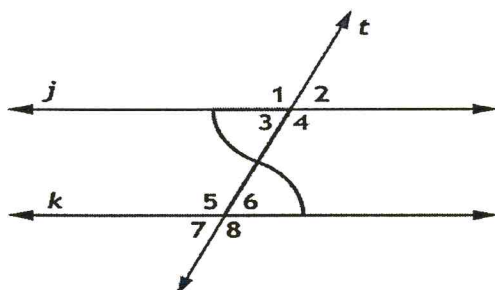
Prove: $\angle R$ and $\angle S$ are complementary.



Statements	Reasons
1. $m\angle Q = 90^\circ$	1. Given, definition of a right angle
2. $m\angle Q + m\angle R + m\angle \boxed{S} = 180^\circ$	2. TRIANGLE SUM THEOREM
3. $90^\circ + m\angle R + m\angle S = 180^\circ$	3. SUBSTITUTION PROPERTY
4. $m\angle R + m\angle S = 90^\circ$	4. Subtraction Property
5. $\angle R$ and $\angle S$ are complementary.	5. Definition of complementary $\angle$s

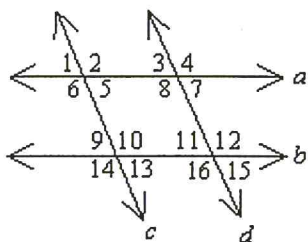
Given: $j \parallel k$

Prove: $\angle 3 \cong \angle 6$



Statements	Reasons
1. $j \parallel k$	1. GIVEN
2. $\angle 3 \cong \angle 2$	2. VERTICAL $\angle$ s $\cong$
3. $\angle 2 \cong \angle 6$	3. CORRESPONDING $\angle$ s $\cong$
4. $\angle 3 \cong \angle 6$	4. TRANSITIVE PROPERTY OF CONGRUENCE

If $a \parallel b$ and $c \parallel d$, prove that $\angle 3 \cong \angle 13$.



Answers Vary