Using Properties of Angles to Solve Equations

NOTES

Using Angle Measurements to Solve Multi-Step Equations:
To solve for a missing value, complete the following steps:

1) 
2) 
3) 

Type of Angles: ____________________________

Key Information: ____________________________

Equation: ____________________________

Solution: ____________________________

Type of Angles: ____________________________

Key Information: ____________________________

Equation: ____________________________

Solution: ____________________________

Type of Angles: ____________________________

Key Information: ____________________________

Equation: ____________________________

Solution: ____________________________

Type of Angles: ____________________________

Key Information: ____________________________

Equation: ____________________________

Solution: ____________________________

Using Angles to Solve Equations - Exit Slip

Write an equation and solve for the missing value. Show your work.

1) 

(3x - 7)° + 147° = 180°

Type of Angles: ____________________________

Key Information: ____________________________

Equation: ____________________________

Solution: ____________________________

2) 

6y + 127° = 180°

Type of Angles: ____________________________

Key Information: ____________________________

Equation: ____________________________

Solution: ____________________________

3) 

115° + 4n - 5° = 180°

Type of Angles: ____________________________

Key Information: ____________________________

Equation: ____________________________

Solution: ____________________________

4) 

m ∠XYZ = 110°

Type of Angles: ____________________________

Key Information: ____________________________

Equation: ____________________________

Solution: ____________________________

5) 

135° + 6n° = 180°

Type of Angles: ____________________________

Key Information: ____________________________

Equation: ____________________________

Solution: ____________________________

Notes Page
Practice
Assessment
Possible Directions For Use:

1. Copy the Notes Page for each student. I have students cut it out and glue it in their notebooks (after the notes are finished).

2. Use the answer key to guide you as you take students through the notes.

3. Once the notes page is completed, have students cut and paste it into their notebooks.

4. Pass out the worksheet as homework, in-class practice, or partner work.

5. The half-sheet exit slip can be used as a formative assessment, for homework, or as an entrance slip the next day.

Helpful hint: I have a bulletin board, where I staple up all notes pages answer keys after a lesson. This is helpful for absent students. I also will use it as a reference throughout the unit.
Using Angle Measurements to Solve Multi-Step Equations

To solve for a missing value, complete the following steps.

1) 
2) 
3) 

Type of Angles: 
Key Information: 
Equation: 
Solution: 

Type of Angles: 
Key Information: 
Equation: 
Solution: 

Type of Angles: 
Key Information: 
Equation: 
Solution: 

Type of Angles: 
Key Information: 
Equation: 
Solution: 

m∠XYZ = 50°
Multi-Step Equations - Practice Worksheet

For each problem, solve for the missing value. Show your work when solving the equation.

<table>
<thead>
<tr>
<th>Problem</th>
<th>Type of Angles</th>
<th>Key Information</th>
<th>Equation</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td>$(3x - 3)°$</td>
<td>$147°$</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>$m \angle XYZ = 60°$</td>
<td>$(3x)^°$</td>
<td>$27°$</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>$(\frac{3}{2}x - 12)°$</td>
<td>$48°$</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>$(5x - 1)°$</td>
<td>$39°$</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>$12x + 71)°$</td>
<td>$9°$</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>$(-2x - 6)°$</td>
<td>$40°$</td>
<td></td>
</tr>
</tbody>
</table>
Using Angles to Solve Equations - Exit Slip

Write an equation and solve for the missing value. Show your work.

1. \( 47° \quad (2x - 3)° \)
2. \( 82° \quad (5y + 12)° \)
3. \( 115° \quad (4n - 5)° \)
4. \( X \quad m \angle XYZ = 110° \)
   \( Y \quad (3x + 2)° \)
   \( 72° \)
   \( Z \)
5. \( 35° \quad (5n)° \)

Using Angles to Solve Equations - Exit Slip

Write an equation and solve for the missing value. Show your work.

1. \( 47° \quad (2x - 3)° \)
2. \( 82° \quad (5y + 12)° \)
3. \( 115° \quad (4n - 5)° \)
4. \( X \quad m \angle XYZ = 110° \)
   \( Y \quad (3x + 2)° \)
   \( 72° \)
   \( Z \)
5. \( 35° \quad (5n)° \)
### Using Angle Measurements to Solve Multi-Step Equations

To solve for a missing value, complete the following steps.

1) **Identify the types of angles given**
2) **Determine the relationship the two angles have**
3) **Set up an equation and solve for the missing value**

<table>
<thead>
<tr>
<th>Type of Angles</th>
<th>Key Information</th>
<th>Equation</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>complementary</td>
<td>sum is 90°</td>
<td>$x + 20 = 90$</td>
<td>$x = 70$</td>
</tr>
<tr>
<td>vertical</td>
<td>angles are congruent</td>
<td>$2x + 25 = 50$</td>
<td>$x = 12.5$</td>
</tr>
<tr>
<td>supplementary</td>
<td>sum is 180°</td>
<td>$5x + 5 + 60 = 180$</td>
<td>$x = 23$</td>
</tr>
<tr>
<td>adjacent</td>
<td>sum is 50°</td>
<td>$2x + 30 = 50$</td>
<td>$x = 10$</td>
</tr>
</tbody>
</table>

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[Diagram of complementary angles]

[Diagram of vertical angles]

[Diagram of supplementary angles]

[Diagram of adjacent angles]
For each problem, solve for the missing value. Show your work when solving the equation.

1. \((3x - 3)°\)  
   Type of Angles: vertical  
   Key Information: angles are congruent  
   Equation: \(3x - 3 = 147\)  
   Solution: \(x = 50\)

2. \((3x)°\)  
   Type of Angles: adjacent  
   Key Information: sum is 60°  
   Equation: \(3x + 27 = 60\)  
   Solution: \(x = 11\)

3. \((\frac{1}{2}x - 12)°\)  
   Type of Angles: supplementary  
   Key Information: sum is 180°  
   Equation: \(\frac{1}{2}x - 12 + 48 = 180\)  
   Solution: \(x = 288\)

4. \((5x - 1)°\)  
   Type of Angles: complementary  
   Key Information: sum is 90°  
   Equation: \(5x - 1 + 39 = 90\)  
   Solution: \(x = 10.4\)

5. \((2x + 71)°\)  
   Type of Angles: complementary  
   Key Information: sum is 90°  
   Equation: \(2x + 71 + 9 = 90\)  
   Solution: \(x = 5\)

6. \((-2x - 6)°\)  
   Type of Angles: vertical  
   Key Information: angles are congruent  
   Equation: \(-2x - 6 = 40\)  
   Solution: \(x = -23\)
Using Angles to Solve Equations - Exit Slip

Write an equation and solve for the missing value. Show your work.

1. \(2x - 3 + 47 = 90\)
   \(2x + 44 = 90\)
   \(x = 23\)

2. \(5y + 12 = 82\)
   \(y = 14\)

3. \(4n - 5 + 115 = 180\)
   \(n = 17.5\)

4. \(3x + 2 + 72 = 110\)
   \(x = 12\)

5. \(5n + 35 = 90\)
   \(n = 11\)
Thank you for downloading these notes and worksheets!

I would love to hear how it went. Don’t forget to leave feedback and earn credit towards future TpT purchases!

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