

Angle Pairs

Geometry · Grade 7

★ Hard · 10 Questions

Solve each problem. Show your work in the space provided. Write your answer on the line.

1. Two supplementary angles differ by 46° .
Find both angles.

Answer: _____

2. Angle $ABC = (4x + 15)^\circ$ and is supplementary to angle $DBC = (6x - 5)^\circ$. Find x .

Answer: _____

3. Three angles around a point are in ratio 2:3:5. Find each angle.

Answer: _____

4. Two complementary angles differ by 18° . Find both.

Answer: _____

5. Angle A and angle B are vertical angles. $A = (2x + 5)^\circ$, $B = 45^\circ$. Find x.

Answer: _____

6. Two angles on a straight line are $(5x - 10)^\circ$ and $(3x + 30)^\circ$. Find x .

Answer: _____

7. Two supplementary angles are in ratio 2:7. Find each.

Answer: _____

8. Angles around a point sum to 360° . Three are 100° , 80° , 70° . Find the fourth.

Answer: _____

9. Two angles form a linear pair. One is 5 times the other. Find both angles.

Answer: _____

10. Find the angle that is its own complement.

Answer: _____

Answer Key

Angle Pairs — Hard

1. **67° and 113°**

Let angles be x and $x+46$. $x+(x+46)=180$. $2x=134$. $x=67^\circ$. Other= 113° .

2. **$x = 17$**

Sum= 180° . $(4x+15)+(6x-5)=180$. $10x+10=180$. $x=17$.

3. **72°, 108°, 180°**

Sum= 360° . $2k+3k+5k=10k=360$. $k=36$. Angles: 72° , 108° , 180° .

4. **36° and 54°**

$x + (x+18) = 90$. $2x=72$. $x=36$. Other= 54 .

5. **$x = 20$**

Vertical equal: $2x+5=45$. $2x=40$. $x=20$.

6. **$x = 20$**

Linear pair sum= 180° . $(5x-10)+(3x+30)=180$. $8x+20=180$. $x=20$.

7. **40° and 140°**

$2k+7k=9k=180$. $k=20$. Angles: 40° and 140° .

8. **110°**

$360^\circ - 100^\circ - 80^\circ - 70^\circ = 110^\circ$.

9. **30° and 150°**

$x + 5x = 180^\circ$. $6x=180^\circ$. $x=30^\circ$. Other= 150° .

10. **45°**

If $x = 90 - x$, then $2x=90$, $x=45^\circ$.