

Practice Questions On Complementary Angles

Name: _____ Date: _____

Complementary Angles Worksheet Questions

Fill in the Blanks

1. The complement of 42° is ____°. Answer: 48°
 2. Two complementary angles in ratio 1:4 are ____° and ____°. Answer: 18° and 72°
 3. Both complementary angles are equal. Each is ____°. Answer: 45°
 4. An acute angle always has a ____ complement. Answer: positive / acute
 5. The complement of the complement of 30° is ____°. Answer: 30°
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True or False

1. Complementary angles must be adjacent. False
 2. Two obtuse angles can be complementary. False — their sum would exceed 90° .
 3. $45^\circ + 45^\circ =$ complementary pair. True
 4. A right angle has a complement of 0° . True — $90 - 90 = 0$, technically.
 5. In a right triangle, the two acute angles are always complementary. True
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Match the Following

Angle	Its Complement
20°	70°
45°	45°
63°	27°
88°	2°
10°	80°

Short Answer Questions

Q1: Can an obtuse angle have a complement? A: No. A complement requires the sum to be 90°. An obtuse angle is already greater than 90°, so no positive angle can be added to it to give exactly 90°.

Q2: What is the complement of 0°? A: $90^\circ - 0^\circ = 90^\circ$. Zero degrees and 90° form a complementary pair.

HOTS Questions on Complementary Angles

Higher-Order Thinking Questions

Q1: Angle X is complementary to Angle Y. Angle Y is complementary to Angle Z. If $Z = 33^\circ$, find X without finding Y.

Solution: Since Z and Y are complementary: $Y = 90 - 33 = 57^\circ$. Since X and Y are complementary: $X = 90 - 57 = 33^\circ$.

Therefore $X = Z = 33^\circ$. Complements of the same angle are always equal.

Q2: Two complementary angles differ by 24° . Find both.

Solution: Let angles = x and $x + 24$.

$$x + (x+24) = 90 \quad 2x = 66 \quad x = 33$$

Angles: 33° and 57°

Exam-Oriented Problems

Q3: Angles on a straight line include a right angle. The remaining angles are complementary. One is $(3y)^\circ$ and the other is $(y + 10)^\circ$. Find y.

Solution: $3y + y + 10 = 90 \quad 4y = 80 \quad y = 20$

Angles: 60° and 30° .

Mixed Geometry Questions

Q4: In right triangle PQR (right angle at Q), $PQ = 5$ cm, $QR = 12$ cm. Angle P and Angle R are complementary. If $\sin P = 12/13$, what is $\cos R$?

Solution: Since $P + R = 90^\circ$, $R = 90^\circ - P$.

$$\cos R = \cos(90^\circ - P) = \sin P = 12/13$$

This demonstrates the complementary relationship between sin and cos.

Q5: The complement of angle A is 15° less than twice angle A.
Find A.

Solution: $90 - A = 2A - 15$ $105 = 3A$ $A = 35^\circ$

Complement = $90 - 35 = 55^\circ$ check: $55 = 2(35) - 15 = 70 - 15 = 55$

Practice Test on Complementary Angles

Beginner Level

1. Find the complement of 25° . Answer: 65°
 2. Are 48° and 42° complementary? Answer: Yes
 3. Both complementary angles are equal. Find each. Answer: 45°
 4. Complement of 89° ? Answer: 1°
 5. One angle = $3x$, its complement = $2x$. Find x. Answer: $x = 18^\circ$
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Intermediate Level

1. Angles $(4x + 2)^\circ$ and $(2x + 4)^\circ$ are complementary. Find x. Answer: $6x + 6 = 90 \rightarrow x = 14$. Angles: 58° and 32° .
 2. Complement is 7 times the angle. Find the angle. Answer: $x + 7x = 90 \rightarrow x = 11.25^\circ$.
 3. Two complementary angles in ratio 5:4. Find both. Answer: $5k + 4k = 90 \rightarrow k = 10$. Angles: 50° and 40° .
 4. A right angle is split into three equal parts. Find each part. Answer: $90 \div 3 = 30^\circ$ each.
 5. Complement of $(45^\circ + x)$? Answer: $90 - (45 + x) = 45 - x$.
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Advanced Level

1. Prove that if two angles are both complementary to the same angle, they must be equal to each other. Answer: If $A + C = 90$ and $B + C = 90$, then $A = 90 - C$ and $B = 90 - C$, so $A = B$.
2. In a right triangle, one acute angle exceeds the other by 18° . Find both. Answer: $x + (x+18) = 90 \rightarrow 2x=72 \rightarrow x=36^\circ$. Angles: 36° and 54° .
3. The complement of angle A is 12° less than three times angle A. Find A. Answer: $90-A = 3A-12 \rightarrow 102=4A \rightarrow A=25.5^\circ$.
4. If angle $P = 2 \times$ angle Q and they are complementary, find both. Answer: $2Q+Q=90 \rightarrow Q=30^\circ$, $P=60^\circ$.
5. The complement of an angle plus its supplement equals 200° . Find the angle. Answer: $(90-x) + (180-x) = 200 \rightarrow 270-2x=200 \rightarrow x=35^\circ$.

