Worksheet #5

ANGLE RELATIONSHIPS AND RATIO PROBLEMS

MeandMath
BELIEVE YOURSELF

Learning goal: Students will Master solving angle problems using ratios and algebraic equations.

1. If angles A : B = 2 : 3 and together they form a right angle, find the value of 2A – B.

2. Angles P and Q are in the ratio 1 : 2. If they together form a straight angle, find the value of 2P –Q.

3. Two angles are in the ratio 5 : 7 and form a straight angle. Find the value of B – A

4. Two angles are in the ratio 2:3 which is 40 degrees less than right angle. What is the measure of two angles?

5. Angle A is one-third of angle B. Together; they form a straight angle. Find the measure of each angle.

6. A reflex angle and an acute angle sum up to a full circle. If the acute angle is 45°, find the reflex angle.

7. One angle is 50° more than the other. Together they form a straight angle. Find both angles.

8. Angles P and Q are in the ratio 1:2. If they together form a right angle, find the value of Q – P.

Name: Grade: Score:

Worksheet #5 (Answers)

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1. If angles A : B = 2 : 3 and together they form a right angle, find the value of 2A – B.

Solution: A + B = 90°
Let A = 2x, B = 3x
$2x + 3x = 90 \Rightarrow 5x = 90 \Rightarrow x = 18$
A = 2×18 = 36, B = 3×18 = 54
2A – B = 2× 36 – 54 = 72 – 54
2A– B= 18

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2. Angles P and Q are in the ratio 1 : 2. If they together form a straight angle, find the value of 2P –Q.
Solution: P + Q = 180°
$x + 2x = 180 \rightarrow 3x = 180 \rightarrow x = 60$
P = x = 60°, Q = 2x = 120°
2P – Q = 120 – 120 = 0
2P – Q = 0

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3. Two angles are in the ratio 5 : 7 and form a straight angle. Find the value of B – A

Solution:
A + B = 180°
$5x + 7x = 180 \rightarrow 12x = 180 \rightarrow x = 15$
A = 75°, B = 105°
B – A = 105 – 75 = 30

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4. Two angles are in the ratio 2:3 which is 40 degrees less than right angle. What is the measure of two angles?

Solution:
2x+3x = 90°– 40° =50°
$5x = 50 \rightarrow x = 10$
2x = 20°, B = 30°
Therefore, 2 angles are 20° and 30°

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5. Angle A is one-third of angle B. Together; they form a straight angle. Find the measure of each angle.

Solution:
Let angle A = x, then angle B = 3x
$x + 3x = 180 \rightarrow 4x = 180 \rightarrow x = 45$
A = 45°, B = 135°
Final Answer: A = 45°, B = 135°

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6. A reflex angle and an acute angle sum up to a full circle. If the acute angle is 45°, find the reflex angle.

Solution:
Reflex angle = Full circle– acute angle
=360° – 45°
= 315°

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7. One angle is 50° more than the other. Together they form a straight angle. Find both angles.

Solution:
Let smaller angle = x, larger = x + 50
$x + x + 50 = 180 \rightarrow 2x = 130$
x = 65
Angles = 65°, 115°

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8. Angles P and Q are in the ratio 1:2. If they together form a right angle, find the value of Q – P.

Solution:
P + Q = 90
$x + 2x = 90 \rightarrow 3x = 90$
x = 30
P = 30°, Q = 60°
Q – P = 60 – 30 = 30