

CBSE Class 6 Mathematics

Word Problem Worksheet — Set 1

Lines and Angles | Difficulty: Difficult

Name: _____ Class: 6 _____ Section: _____ Date: _____

1. A wall clock shows the time as 4 o'clock. Find the angle between the hour and minute hands, and classify the angle formed. [3 marks]

2. Rohan is fixing a bookshelf bracket on the wall. The bracket must make a right angle with the wall. If one arm of the bracket already makes an angle of 38° with the horizontal shelf, what angle must the other arm make with the shelf so that together they form a right angle? [3 marks]

3. A ladder is placed against a wall such that it makes an angle of 62° with the ground. Find the angle the ladder makes with the wall, given that the wall is perpendicular to the ground. [3 marks]

4. Two straight roads cross each other at a chowk (intersection), forming four angles. If one of the angles formed is 3 times the adjacent angle, find all four angles. [3 marks]

5. A carpenter is cutting a wooden plank and wants two straight cuts to be perpendicular. After the first cut, he measures the second cut and finds it makes 105° with the first. By how many degrees should he adjust the second cut to make it exactly perpendicular? [3 marks]

6. An artist is designing a logo using two rays from a common point. If the angle between the rays is a reflex angle of 250° , find the measure of the smaller angle between the same two rays (measured the other way around). [3 marks]

7. A gate opens outward and swings through $\frac{3}{4}$ of a right angle before hitting a stopper. Find the angle in degrees through which the gate has swung, and classify it. [3 marks]

8. Two adjacent angles on a straight path made by a signboard pole are in the ratio 4:5. Find the measure of each angle. [3 marks]

9. In a triangular traffic sign, one angle is a right angle and the other two angles are in the ratio 2:3. Find the measures of the other two angles. (Hint: angles of a triangle add up to 180° .) [3 marks]

10. A windmill has blades fixed at equal angles around its centre. If there are 6 blades placed symmetrically, find the angle between two consecutive blades. [3 marks]

Answer Key — Set 1

1. At 4 o'clock, angle = $4 \times 30^\circ = 120^\circ$, which is an obtuse angle.
2. Right angle = 90° ; the other arm must make $90^\circ - 38^\circ = 52^\circ$ with the shelf.
3. Since the wall is perpendicular to the ground, angle with wall = $90^\circ - 62^\circ = 28^\circ$.
4. Vertically opposite angles are equal and adjacent angles form a linear pair. Let adjacent angle = x , other = $3x$; $x + 3x = 180^\circ \rightarrow x = 45^\circ$. Angles are $45^\circ, 135^\circ, 45^\circ, 135^\circ$.
5. For a perpendicular cut, the angle should be 90° . Current angle = 105° , so he must reduce it by $105^\circ - 90^\circ = 15^\circ$.
6. Full turn = 360° ; smaller angle = $360^\circ - 250^\circ = 110^\circ$.
7. Right angle = 90° ; $3/4$ of $90^\circ = 67.5^\circ$. This is an acute angle.
8. Sum of linear pair = 180° ; ratio parts = $4+5 = 9$; each part = 20° ; angles = 80° and 100° .
9. Remaining angle sum = $180^\circ - 90^\circ = 90^\circ$; ratio 2:3, total parts = 5, each part = 18° ; angles = 36° and 54° .
10. Full turn = 360° ; angle between consecutive blades = $360^\circ \div 6 = 60^\circ$.

Word Problem Worksheet — Set 2

Lines and Angles | Difficulty: Difficult

Name: _____ Class: 6 _____ Section: _____ Date: _____

1. A surveyor measures the angle of elevation of a mobile tower from a point on the ground and records it as 78° . What type of angle is this, and what is its complement (the angle that added to it makes 90°)? [3 marks]

2. Two rail tracks cross each other at a level crossing, forming four angles at the intersection. One of the angles measures 118° . Find the measures of the remaining three angles. [3 marks]

3. A pizza is cut into 8 equal slices from the centre. Find the angle of each slice, and state whether this angle is acute, right, or obtuse. [3 marks]

4. A see-saw at a park is balanced horizontally. When one child sits on one side, the see-saw tilts and makes an angle of 25° with the horizontal ground on one side. What angle does the other side make with the ground? [3 marks]

5. The blades of a table fan rotate and complete $\frac{1}{3}$ of a full turn in one second. Find the angle through which a blade turns in one second. [3 marks]

6. A book is kept open such that its two covers make an angle of 130° with each other. If the book is closed slowly by 40° , what will be the new angle between the covers? [3 marks]

7. In a road diversion sign, two straight barricades meet at a point forming a reflex angle of 200° on one side. Find the angle formed on the other (smaller) side. [3 marks]

8. A see-through glass door pivots and can open to a maximum angle of 150° before hitting a wall. If it is currently open at $\frac{3}{5}$ of its maximum angle, find the current angle of opening. [3 marks]

9. Two adjacent walls of a room meet to form a right angle. A shelf is fixed diagonally such that it divides this right angle into two parts in the ratio 1:2. Find the two angles. [3 marks]

10. The spokes of a bicycle wheel are equally spaced. If the angle between two consecutive spokes is 15° , find the total number of spokes on the wheel. [3 marks]

Answer Key — Set 2

1. 78° is an acute angle since it is less than 90° . Its complement = $90^\circ - 78^\circ = 12^\circ$.
2. Vertically opposite to 118° is 118° ; the other two adjacent angles are each $180^\circ - 118^\circ = 62^\circ$.
3. $360^\circ \div 8 = 45^\circ$ per slice; this is an acute angle.
4. Since the see-saw is one straight bar, the two sides are always in a straight line, so the angle on the other side is also 25° (equal tilt on the opposite arm, measured from the ground on that side).
5. Full turn = 360° ; $1/3$ of $360^\circ = 120^\circ$.
6. New angle = $130^\circ - 40^\circ = 90^\circ$.
7. Full turn = 360° ; smaller angle = $360^\circ - 200^\circ = 160^\circ$.
8. Maximum = 150° ; current = $3/5 \times 150^\circ = 90^\circ$.
9. Right angle = 90° ; ratio 1:2, total parts = 3, each part = 30° ; angles = 30° and 60° .
10. Full turn = 360° ; number of spokes = $360^\circ \div 15^\circ = 24$ spokes.

Word Problem Worksheet — Set 3

Lines and Angles | Difficulty: Difficult

Name: _____ Class: 6 _____ Section: _____ Date: _____

1. A cricket fielder stands such that the angle between the line to the batsman and the line to the wicketkeeper is 145° . Classify this angle. [3 marks]

2. A road sign shows two straight paths diverging from a single point, forming an angle of 55° . If a new path is added exactly bisecting this angle, find the measure of each smaller angle formed. [3 marks]

3. The hands of a clock show 10 minutes past 6. Estimate whether the angle between the hour and minute hands at this time is closer to acute, right, obtuse, or reflex (no exact calculation needed, reasoning only). [3 marks]

4. A see-through kite frame is made of two perpendicular sticks crossing at the centre. If one stick is tilted by 12° from its original perpendicular position, what is the new angle between the two sticks? [3 marks]

5. A student folds a rectangular sheet of paper twice to create four equal angles at the point where the folds cross. What is the measure of each angle, and what type of angle is it? [3 marks]

6. A weather vane rotates $\frac{3}{4}$ of a full turn due to the wind direction change. What angle, in degrees, has the weather vane rotated through? [3 marks]

7. The support wires of an electric pole make angles of 50° and 40° with the ground on either side of the vertical pole. Find the angle between the two support wires at the point where they meet the pole (assume the pole is vertical, i.e., makes 90° with the ground). [3 marks]

8. In a stair railing, each step of the railing makes the same angle with the vertical post. If there are 5 equal angles formed summing to a straight angle along one side, find the measure of each angle. [3 marks]

9. A pair of scissors is opened such that the two blades form an angle of 38° . If opened further by 52° more, what is the new angle between the blades, and what type of angle is it now? [3 marks]

10. A rotating sprinkler covers a reflex angle of 290° while watering a lawn. What acute or obtuse region (in degrees) is left uncovered? [3 marks]

Answer Key — Set 3

1. 145° is an obtuse angle (between 90° and 180°).
2. Bisected angle: $55^\circ \div 2 = 27.5^\circ$ for each smaller angle.
3. At 10 minutes past 6, the minute hand is near the '2' and the hour hand is just past '6', so the angle between them is closer to a reflex/obtuse range — reasoning shows the angle is greater than 90° , making it obtuse (approaching but not yet reflex).
4. Perpendicular sticks originally form 90° ; tilting one by 12° changes the angle to $90^\circ - 12^\circ = 78^\circ$ on one side and $90^\circ + 12^\circ = 102^\circ$ on the other side.
5. Since the folds cross to form four equal angles summing to 360° , each angle $= 360^\circ \div 4 = 90^\circ$, a right angle.
6. Full turn $= 360^\circ$; $3/4 \times 360^\circ = 270^\circ$.
7. Pole makes 90° with the ground on each side; angle between the two wires $= (90^\circ - 50^\circ) + (90^\circ - 40^\circ) = 40^\circ + 50^\circ = 90^\circ$.
8. Straight angle $= 180^\circ$; $180^\circ \div 5 = 36^\circ$ for each angle.
9. New angle $= 38^\circ + 52^\circ = 90^\circ$, which is now a right angle.
10. Full turn $= 360^\circ$; uncovered region $= 360^\circ - 290^\circ = 70^\circ$, which is an acute angle.

