WONDERLEARNERZ PRIMARY ACADEMY â€" OFFICIAL ANSWER KEY & MARKING SCHEME

# Spatial Awareness and Directions - Worksheet 3 [ANSWER KEY]

Grade 3 | Mathematics | Ch 2: Spatial Awareness and Directions | Total Marks: 19 | Time: 30 Minutes

**Q1. Which cardinal direction is directly opposite to West on a standard compass rose?** [1 Mark]

**Correct Answer: East**

*Explanation: East is directly opposite West.*

**Q2. If you are facing North and make a 90Â° quarter turn clockwise, which direction do** [1 Mark]
you face?

**Correct Answer: East**

*Explanation: A quarter turn clockwise from North faces East.*

**Q3. On a coordinate map, a rover starts at (1, 1) and travels 5 units East and 4 units** [1 Mark]
North. What is the rover's final coordinate?

**Correct Answer: (6, 5)**

*Explanation: Horizontal: 1 + 5 = 6. Vertical: 1 + 4 = 5. Coordinate is (6, 5).*

**Q4. How many quarter turns (90Â°) are in one complete full turn (360Â°)?** [1 Mark]

**Correct Answer: 4 quarter turns**

*Explanation: 360Â° / 90Â° = 4 quarter turns make one full rotation.*

**Q5. At the Harbor Island Regatta, a guide walks 5 blocks East, then 4 blocks North,** [1 Mark]
and finally 2 blocks West. What is the guide's net horizontal distance from start?

**Correct Answer: 3 blocks East**

*Explanation: 5 East minus 2 West = 3 blocks East.*

**Q6. A delivery van starts at warehouse (0, 0) and makes 3 drops: (2, 0), then (2, 4),** [1 Mark]
then (5, 4). If each grid unit is 1 km, what total driving distance did the van cover?

**Correct Answer: 9 km**

*Explanation: From (0,0) to (2,0) is 2 km. From (2,0) to (2,4) is 4 km. From (2,4) to (5,4) is 3 km. 2 + 4 + 3 = 9 km.*

**Q7. A hiker on the Harbor Island Regatta is facing South. After making a half turn** [1 Mark]
(180Â°), which direction are they facing, and which way should they turn 90Â° to face West?

**Correct Answer: Facing North; turn counter-clockwise 90Â° to face West**

*Explanation: A half turn from South faces North. From North, a 90Â° counter-clockwise (left) turn faces West.*

**Q8. A treasure chest is buried at grid location (9, 7). A pirate starts at (5, 4). How** [1 Mark]
many blocks East and North must the pirate walk?

**Correct Answer: 4 blocks East and 3 blocks North**

*Explanation: East: (9) - 5 = 4 blocks. North: (7) - 4 = 3 blocks.*

**Q9. Find the missing turn: 'Facing North, turn quarter turn clockwise (face East),** [1 Mark]
then turn [ ? ] to face South.'

**Correct Answer: Quarter turn clockwise (90Â°)**

*Explanation: From East, a 90Â° clockwise turn faces South.*

**Q10. Kiran reads a treasure map and records location (4, 7) as 'Row 4, Column 7'. What** [1 Mark]
is Kiran's error?

**Correct Answer: In coordinate notation (x, y), the first number is the horizontal column (x = 4) and the second is the vertical row (y = 7)**

*Explanation: Standard Cartesian coordinates list horizontal (column / x) before vertical (row / y).*

**Q11. A student says: 'If I am facing East and make two quarter turns clockwise, I will be facing North.' What direction will the student actually face?** [1 Mark]

**Correct Answer: West**

*Explanation: Two quarter turns clockwise = 180Â° half turn. The opposite of East is West.*

**Q12. Why are compass directions (N, S, E, W) universally preferred over 'left' and 'right' when giving long-distance directions on maps?** [2 Marks]

**Correct Answer: Compass directions are absolute and unchanging regardless of which way a person faces, whereas 'left' and 'right' change depending on your body's orientation**

*Explanation: Cardinal directions provide invariant reference frames independent of the traveler's momentary viewpoint.*

**Q13. If you walk in a closed square loop: 10 meters North, 10 meters East, 10 meters South, and 10 meters West, where do you end up?** [2 Marks]

**Correct Answer: Exactly at your original starting point**

*Explanation: The North and South movements cancel each other (10 - 10 = 0), and East and West cancel each other (10 - 10 = 0).*

**Q14. A search rescue drone patrols a perimeter grid. It flies from (2, 2) to (7, 2), then to (7, 6), then to (2, 6), and returns to (2, 2). What is the total perimeter distance flown?** [2 Marks]

**Correct Answer: 18 units**

*Explanation: Perimeter of rectangle = 2 x (length + width) = 2 x (5 + 4) = 18 units.*

**Q15. A robot faces North. It executes 5 successive quarter turns clockwise. In which direction is it facing at the end?** [2 Marks]

**Correct Answer: East**

*Explanation: 4 quarter turns = 360Â° (back to North). The 5th quarter turn faces East.*