

ANGLES - DIRECTIONS

Angles are visible in many things. We can make several turns. We can turn our body to make angles. We face different direction when we turn in a central location to face another direction. Think of a compass.



We can tell direction with the use of a compass.



A clockwise turn on the compass from North to East is 90 degrees or a Right Angle, also called a **quarter turn**. A turn from North to South is a 180 degree (or two Right Angles) turn, called a **half turn**. A clockwise turn from North to West is 270 degree or 3 right angles called a **three quarter turn**. And a turn from North to North (to the starting point) is 360 degrees or 4 Right Angles, called a **whole turn** or **1 revolution**.

This is similar to the hands of a clock.



Exercises

1. What is the size of an angle if Marc turns clock-wise from North to South-East?

- 90 degrees, or a quarter turn
- 180 degrees turn or a half turn
- 135 degrees turn
- 360 degrees or a whole turn

2. What size of the angle can you make by moving from one direction to another?

- | | |
|------------------|---------------|
| a) North to NE – | d) S to NW – |
| b) S to W – | e) NE to SW – |
| c) Ne to NE – | f) E to SE – |

3. If the minute hand on a clock moves from 12 to 3, what angle has it turned?

- | | |
|---|---|
| <input type="checkbox"/> 1 right angle | <input type="checkbox"/> 3 right angles |
| <input type="checkbox"/> 2 right angles | <input type="checkbox"/> 4 right angles |

4. What angle does a minute hand turn if the it moves from 12 to 6?

- | | |
|---|---|
| <input type="checkbox"/> 1 right angle | <input type="checkbox"/> 3 right angles |
| <input type="checkbox"/> 2 right angles | <input type="checkbox"/> 4 right angles |

5. If the minute hand takes 60 minutes to complete a whole turn, or 4 right angles, that is equal to 360° . How much degrees are 1 minute?

Answer – It will take a _____ turn for every one minute.

6. Calculate through how many degrees the minute hand turns in:

a) $\frac{1}{2}$ hour = _____ revolution = _____ right angles = _____

b) 35 minutes = _____

c) $\frac{2}{3}$ revolution = _____ minutes = _____

d) $\frac{1}{4}$ revolution = _____ right angle = _____

e) 45 minutes = _____ revolution = _____ right angles = _____

f) 20 minutes = _____

g) 10 minutes = _____

h) $\frac{3}{4}$ revolution = _____ right angles = _____

7. Calculate the angle through which the minute hand turns from 2:06 a.m. to 2:20 a.m.

The amount of minutes it turned = _____ minutes

Therefore, _____ minutes = _____

8. Calculate the angle through which the minute hand turns from 11:55 p.m. to 12:10 a.m.

The turn from 11:55 p.m. to 12:00 midnight. = _____ minutes

The turn from 12:00 midnight to 12:10 a.m. = _____ minutes

The total turn from 11:55 p.m. to 12:10 a.m. = _____ minutes = _____ right angle = _____

Answer = _____

9. If the hour hand turns from 2 to 7, through what angle has it turned?

Note: the hour hand took 5 hours.

If the hour hand takes 12 hours to make 1 revolution or 360 degree turn

the hour hand took $(\square/12) \times 360^\circ = \square^\circ$ turn

10. Calculate the angle through which the hour hand turns from:

a) Noon to 8:00 p.m. = \square hours = $\square/3$ revolution = _____ $^\circ$

b) 11:00 a.m. to 9:00 p.m. = \square hours = _____ $^\circ$

c) 0400 hrs to 0700 hrs = \square hours = $\square/4$ revolution = _____

d) 1700 hrs to 2300 hrs = \square hours = $\square/2$ revolution = _____