Understanding Quarters: Clockwise and Counterclockwise:

Concepts of *clockwise* (moving in the direction of a clock's hands) and *counterclockwise* (moving in the opposite direction to a clock's hands) rotations.

Clockwise, Counterclockwise, or Anti-clockwise Challenge!

Drag and drop the correct answers under the pictures below, examine the images of rotating arrows (clockwise, counterclockwise, and anti-clockwise).

Clockwise
Clockwise
Clockwise

Counter clockwise
Anti-Clockwise

Clockwise
Clockwise
Clockwise

Counter clockwise
Anti-Clockwise

Choose a letter from the "Rotation" box presented on your right to answer the following questions below.

1. Which direction do the hands of a clock move? __a.__
2. Opposite to clockwise is...? __b.__
3. If you turn a doorknob to the right, what direction are you turning it in? __a.__
4. If you were to walk around a circular track in the direction opposite to the hands of a clock, what direction would you be walking in? __b.__
5. How many quarter turns do you make when you go counterclockwise in total?__ 4___

6. True or False: Counterclockwise rotation is also known as anticlockwise rotation.

7. True or False: Spinning a top in the direction opposite to a clock's hands is anti-clockwise.

8. True or False: Turning the pages of a book from right to left is a clockwise action.

9. True or False: Twisting a jar lid counterclockwise loosens it.

Rotations	
a.	Clockwise
b.	Counter clockwise
c.	Anti-clockwise
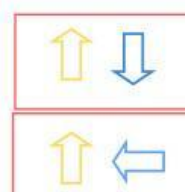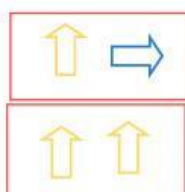
10.The arrows are being turned clockwise. Match the pictures to the turns.
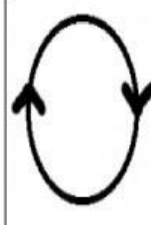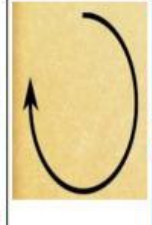

1/2 turn   Full turn

¾ turn   1/4 turn

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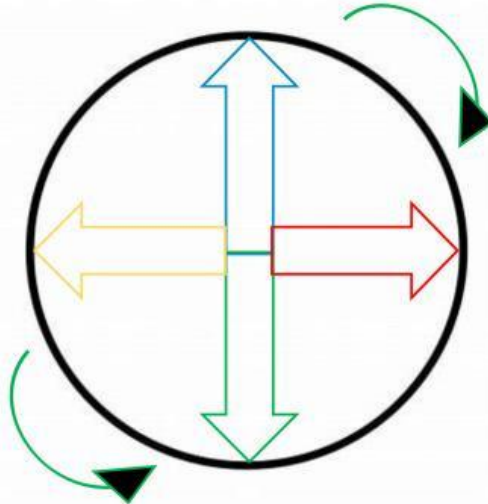
1. If you turn the circle halfway clockwise, which arrow will point to the top?
   a. Green   b. Blue   c. Yellow   d. Red

2. Make a half turn clockwise from the red arrow, which color arrow will you land on?
   a. Red   b. Yellow   c. Green   d. Blue

3. Starting from the yellow arrow and making a quarter turn anti-clockwise, which color
   arrow will you reach? a. Blue   b. Red   c. Yellow   d. Green

4. If you make a three-quarter turn clockwise from the blue arrow, which color arrow will be
   opposite to it?   a. Yellow   b. Blue   c. Green   d. Red

5. How many quarter turns clockwise do you need to make from the red arrow to reach the
   same position again?   a. 1   b. 2   c. 3   d. 4

6. If you turn the circle by a three-quarter turn anticlockwise, where will the arrow that was
   pointing to the bottom end up?
   a. Top   b. Bottom   c. Left   d. Right

7. The owl makes a whole turn anti-clockwise. How many degrees did it
   rotate?   a. 180°   b. 90°   c. 360°   d. 270°

8. If the owl turns three quarters of a turn clockwise, how many degrees has it
   rotated? a. 180°   b. 90°   c. 360°   d. 270°

9. If the hour hand is at 1 and the minute hand is at 6, what fraction of a turn
   has the hour hand completed from the quarter hour to the half hour?

   | 1/2 turn | 1/4 turn | Full turn | ¾ turn |

Understanding Quarters: Clockwise and Counterclockwise:con't

Concepts of *clockwise* (moving in the direction of a clock's hands)   and
counterclockwise (moving in the opposite direction to a clock's hands) rotations.

1. Select the correct answer by clicking the checkbox next to the options provided for the following two questions below.

Start

Circle the **whole** turn.

Start

Circle the **quarter** turn.

Write in your answers for **Q1-4 & 9** in the space provided below. Select True or False for **Q5-8**.

1. If the giraffe completes a full turn clockwise from its original position shown above,
   what direction is it facing now? Express your answer in degrees.   _ 360__°

2. If the giraffe turns halfway clockwise from its original position shown above, what
   direction is it facing now? Express your answer as either "left" or "right".   _Right_

3. If the giraffe makes a quarter turn counter-clockwise from its starting position, which
   direction is it facing now? __Left___   a. How many degrees did it turn _ 90__°

4. True or False : If a giraffe sitting in its initial position takes a half turn clockwise, it will end
              up facing the same direction.

5. True or False : A quarter turn clockwise is the same as a quarter turn anti-clockwise.

6. True or False   : If a giraffe is sitting 3 clockwise positions from its original position, it has
              completed a half turn.

 7. True or False : After a whole turn clockwise, a giraffe sitting at the 3 o'clock position will
              be facing the 9 o'clock direction.

8. True or False : When the giraffe makes a quarter turn clockwise, it will end up facing
               to the right.

9.

List the clockwise positions of the giraffe in the picture and it's degrees.
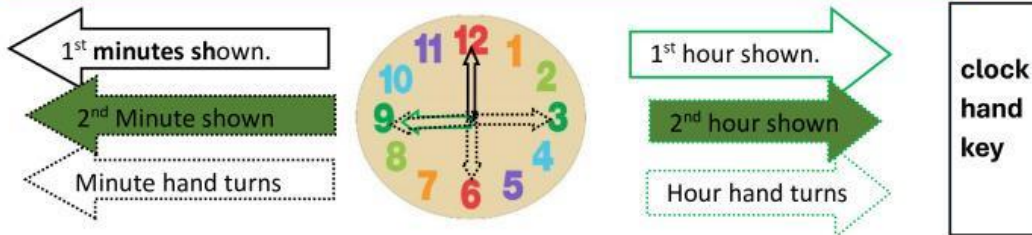
| /4 turn = ____° | Full turn = ____° | /4 turn = ____° | / turn = ____° | ____ turn = 360° |

Understanding Quarters: Clockwise and Counterclockwise: con't

Concepts of *clockwise* (moving in the direction of a clock's hands)   and
*counterclockwise* (moving in the opposite direction to a clock's hands) rotations.

1st **minutes sh**own.

2nd **Minute shown**

Minute hand turns

1st hour shown.

2nd hour shown

Hour hand turns

clock
hand
key

1. **If the minute hand makes a three-quarter turn anti-clockwise from 9 o'clock,
    what angle does it form with the vertical line? Aanswer in degrees:- _ 270__ °**

2. **For each question, fill in the required feild to determine the rotation angle and
    degrees based on the clock's time and rotation direction. Utilize the "clock hand key"
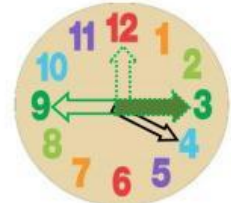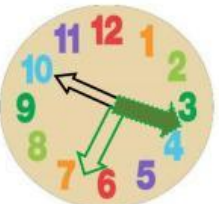   as a guide to anwer**

1.
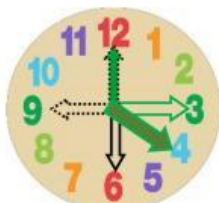
Clock Time	: 3:30 - 4:00
Clock Hand	: minutes
Amount of Time:	30 min
Turns	: 1/2
Directions	: Right
Rotation	: Clockwise
Angle (Degrees):	
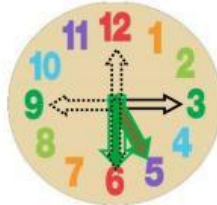
Clock Time	: 6:15 - 5:30
Clock Hand	: minutes
Amount of Time	: 45 min
Turns	: 3/4
Directions	:Left
Rotation	:Counter-clockwise
Angle (Degrees) :	

Clock Time	: 9:20 – 3:20
Clock Hand	: Hour
Amount of Time	: 45 min
Turns	: 1/2
Directions	:Right
Rotation	:clockwise
Angle (Degrees) :	

Clock Time	: 6:50 - 3:50
Clock Hand	: Hour
Amount of Time:	3 hrs
Turns	: 1/4
Directions	: Left
Rotation	: Counter- Clockwise
Angle (Degrees):	
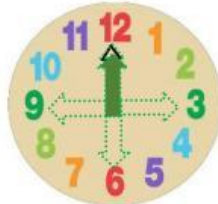
Clock Time	: 12:00 - 12:00
Clock Hand	: Hour
Amount of Time	: 24 hrs
Turns	: 4
Directions	:Left/Right
Rotation	:Counter-clockwise
Angle (Degrees) :	

Clock Time	: 7:45 – 8:30
Clock Hand	: minutes
Amount of Time	: 45 min
Turns	: 3/4
Directions	:Right
Rotation	:clockwise
Angle (Degrees) :	

LIVEWORKSHEETS