What are the size (in degrees) of the 18 slices of PIE created by these 18 turtles?

What is the WHO number of this watched turtle?

What is the heading of this watched turtle?

What is known about this turtle that will be useful in finding its (xcor, ycor) location.

What is the xcor of this watched turtle?

What is the ycor of this watched turtle?

```
TO draw18Turtles
    drawAxis
    cro 18
    ask turtles
    [
        pd
        set color red
        set pen-size 2
        set size 2
        fd 14
    ]
END
```

VET SAT AUC TVV SO YMDC

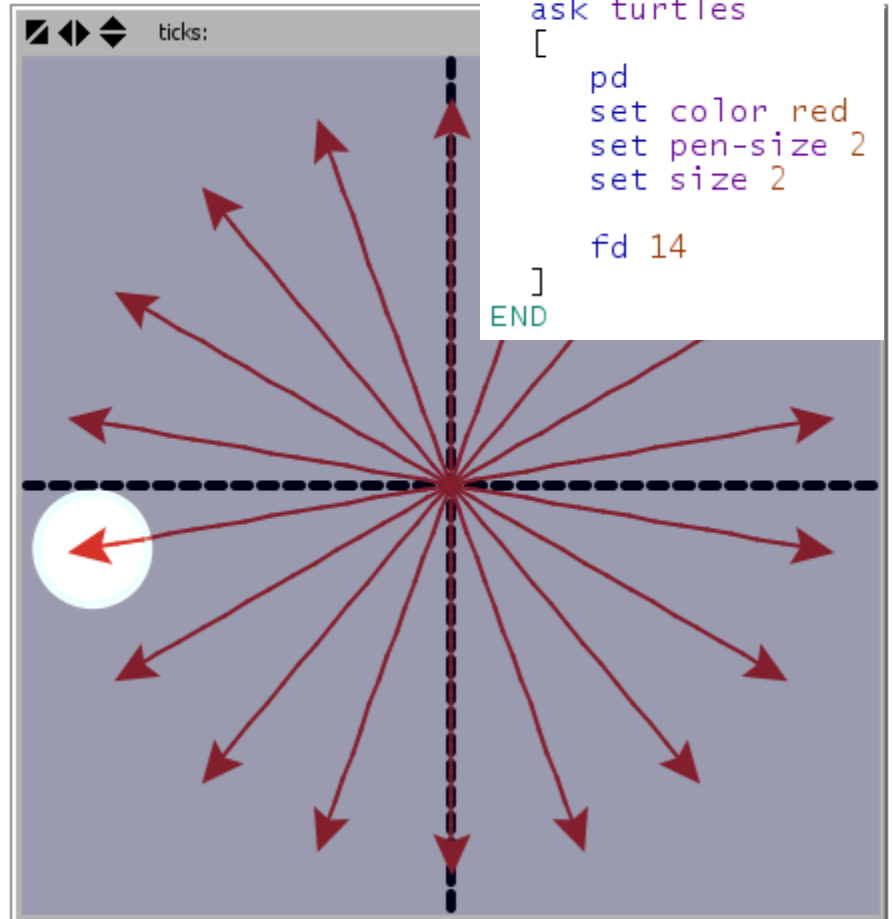What is the WHO number of this 2nd watched turtle?
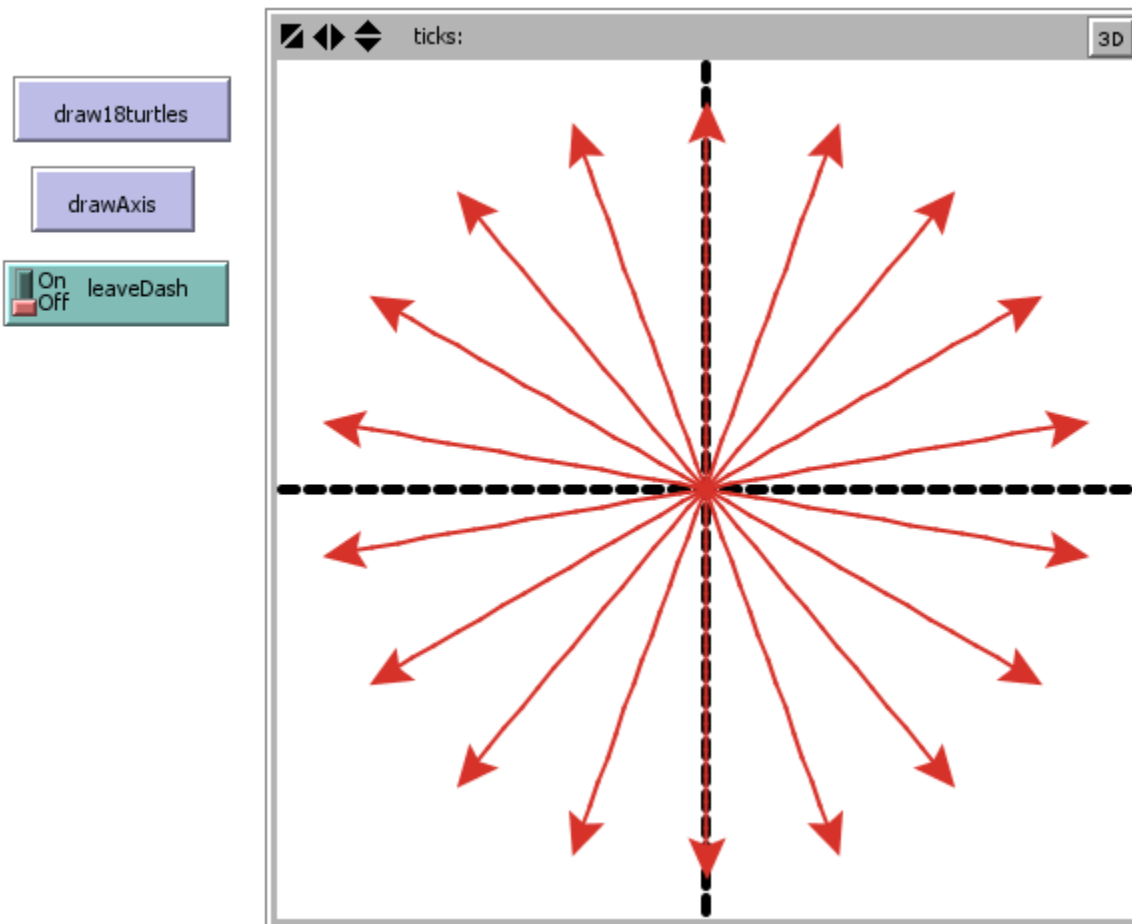
What is the heading of this watched turtle?

What is known about this turtle that will be useful in finding its (xcor, ycor) location.

Draw a picture to illustrate what is GIVEN and what is the GOAL.

What is the xcor of this watched turtle?

What is the ycor of this watched turtle?

How was the set of AXIS drawn with the dashed lines?

Look at the code. Download and run the program and set the speed to slower than NORMAL SPEED to see the graphics occur step by step.

Both the Patches and the Turtles were ask instead of ask-concurrent.

Trig11_17_2014.nlogo

FOURTEEN questions.

Six questions for turtle #1 (Q1–Q6).

Six questions for turtle #2 (Q7–Q12).

Two additional questions on turtle #2 (Q13–Q14).

VIP: Use SCRATCH PAPER 1st.

Then neatly write up your answer on the answer sheet for each question, showing the steps in a very organized and readable presentation. Presentation is very important. Rewriting also helps develop and deepen your understanding.


```
TO draw18Turtles

   drawAxis

   cro 18

   ask turtles
   [
       pd
       set color red
       set pen-size 2
       set size 2

       fd 14
   ]
END
```

File Edit Tools Zoom Tabs Help

Interface | Info | Code

Find... Check | Procedures ▼ | ☑ Indent automatically

```
to drawAxis
    ca
    ask patches [ set pcolor white ]
    cro 1

    ask turtles
    [
        set pen-size 5

        set color black

        set leaveDash true
        bk 0.25
        repeat 67
        [
            doSegment
        ]

        setxy 0 0

        rt 90
        bk 0.25
        set leaveDash true

        repeat 67
        [
            doSegment
        ]

        die
    ]
END

TO doSegment
    fd 0.5
    ifelse leaveDash
    [
        pu
    ]
    [
        pd
    ]
    set leaveDash not leaveDash
END
```
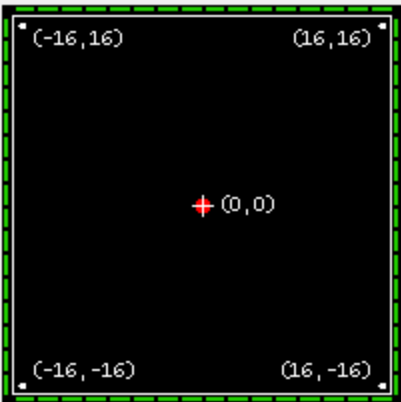
Model Settings

World

(-16,16)   (16,16)

Location of origin: Center ▼

min-pxcor -16
minimum x coordinate for patches

max-pxcor 16
maximum x coordinate for patches

+ (0,0)

min-pycor -16
minimum y coordinate for patches

(-16,-16)   (16,-16)

max-pycor 16
maximum y coordinate for patches   Torus: 33 x 33

☑ World wraps horizontally

☑ World wraps vertically

View

Patch size 13   Font size 10
measured in pixels   of labels on agents

Frame rate 30
Frames per second at normal speed

Tick counter

☑ Show tick counter

Tick counter label ticks

OK   Apply   Cancel

VET SAT AUC TVV SO YMDC

Very Effective Thinking **So As To** **Avoid Unmastered Complexity,**

To Very Vigorous **Separation Of** **Your Many Different Concerns.**

The two main concerns for any problem solver that has a problem that they want to solve are WHAT and HOW:

#1: WHAT is the problem. Understand it. Grasp WHAT is given, WHAT is the situation. Get clear on WHAT is the GOAL, the unknown, the desired answer or result to be achieved.

#2: The 2nd concern is the HOW to solve it. HOW do we get to the goal from the given starting point. HOW to get from WHAT is given to WHAT is the goal is the 2nd concern and step of problem solving. Very vigorously separate those two concerns and steps!

VIP: SHOW your step by step work and process of arriving at your answer for each and every one of these 12 problems! Numerators and denominators, phases of the solving from beginning to end.

1. What is the size (in degrees) of the 18 slices of PIE created by these 18 turtles?

2. What is the WHO number of this watched turtle?

3. What is the heading of this watched turtle?

4. What is known about this turtle that will be useful in finding its (xcor, ycor) location.

5. What is the xcor of this watched turtle?

6. What is the ycor of this watched turtle?

7. What is the WHO number of the 2nd watched turtle?

8. What is the heading of the 2nd watched turtle?

9. What is known about the 2nd turtle that will be useful in finding its (xcor, ycor) location.

10. Draw a picture to clearly illustrate what is GIVEN and what is the GOAL. Focus on the WHAT.

11. What is the xcor of the 2nd watched turtle?

12. What is the ycor of the 2nd watched turtle?

13. Assume you already have the xcor figured out from question #11. Solve question #12 without using any trig functions, i.e. without using Sine or Cosine or Tangent.

14. Assume you already have xcor figured out from question #11 and that you solved question #12 using a trig function. Solve question #12 using a DIFFERENT trig function.