

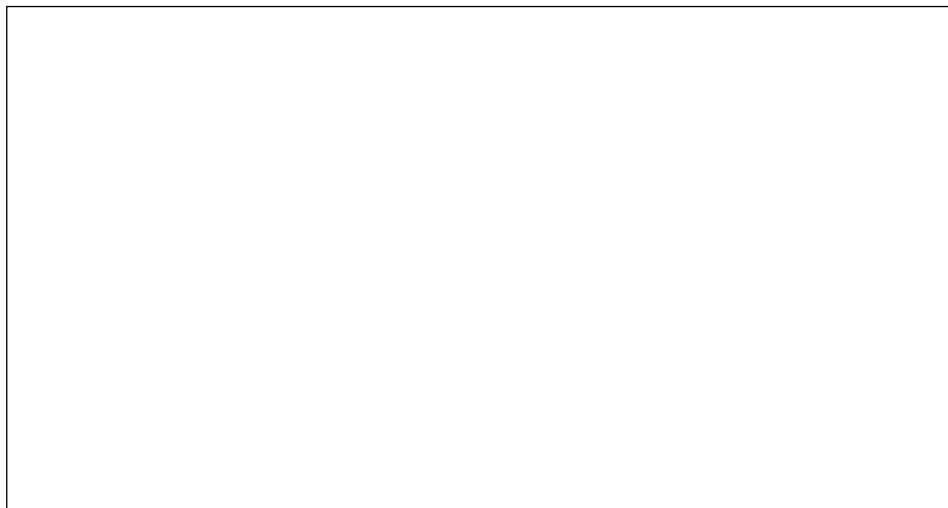
## Trace a Star

pp1–3 Draw your pictures (including location of  $C$  and value of  $\theta$ ) on the back of this sheet.

### Introduction

p1 In this box  
draw a picture  
of your shape.  
Show  $x$ ,  $C$ ,  $\theta$ ,  
and  $R_{C,\theta}(x)$ .

What do you  
notice, and  
wonder, when  
you drag  $x$ ?



## Rotate Dances

### Do the Rotate Dance

Once you've choreographed and practiced your rotate dance, your teacher may ask you to perform it for the whole class.

You teacher may ask you to email or upload a video of your group's rotate dance.

If you've uploaded your dance video to a location on the web, write the url of your dance video here:

### Virtual Dance Challenge

What did you notice as you did the dance on page 1? What did you wonder?

## **Rotation Stars**

### **Create Your First Star**

Describe the function rule you used for each arm: Where did you put center  $C$  and what value did you use for  $\theta$ ?

Arm 1:

Arm 2:

Arm 3:

### **Create More Stars**

**p1** List two problems that you had to solve, and describe clearly how you solved them. Draw a picture, or paste a screen capture, to show your solution.

**p2-5** Describe a problem that you had to solve for one of the stars on pages 2 through 5, and explain how you solved it. Draw a picture to show your solution.

Problem from page # \_\_\_\_:

**p6-7** Pages 6–7: Draw a picture of your favorite original design.

## Where, Oh Where, Can the Center Be?

### Develop Your Methods

**p1** On page 1, how can you tell where the rotated image must be?

**p2** On page 2, how can you tell where the rotated image must be?

**p3-4** Pages 3–4: Describe your strategy. Were some problems harder than others? What made them harder?

**p6-7** Pages 6–7: Was it easier to use distances or a circle to find possible center points? Explain.

**p8** Page 8: Could you find a way to use the line and/or two circles to help you? Explain.

### Solve the Mystery

**p1** Explain your construction. Would any other location of  $C$  work?

Describe what happens when you drag  $D$ .

**p2** How did you adjust the centers? What did you notice about the angle values?

What happens when you drag points  $D$  and  $E$ ? Can you adjust the construction so it still has a single center point? Explain.

**p3** Explain the construction you used to find the hidden location for  $C$ .

Drag several of the original points. Do the original  $C$  and  $\theta$  still work? Why or why not?

### Go Further

Paste a copy of one or two of your favorite pages from this activity.

What was the most interesting thing you learned from this activity?

### **Check Yourself**

Paste a screen capture of your best result on each of these games.

### **The Rotate Family (Entire Lesson)**

#### **What We Learned**

List the two most interesting things you learned from this lesson.

What do you know about rotation now that you didn't know before?

Try the Warm-Up activity at the top of the page again. Is it easier now? Why?

#### **Our Suggestions**

What was the most fun part of the activity?

What part of the activity did you learn the most from?

What was the least fun part of the activity?

How could this activity be made better? (Be as specific as possible.)