



# Precalc unit test review

SESSION  
CODE

## Activity Checklist

- ☐ Complete the activity using student preview.
- ☐ Identify your learning targets for the activity.
- ☐ Determine the screens where you'll bring the class together using Teacher Pacing and Pause Class. What will you discuss on those screens?
- ☐ Anticipate screens where students will struggle, then plan your response.
- ☐ Plan a challenge for students who finish the activity quickly and successfully.
- ☐ Make yourself available during the activity to students for individual help and questions when appropriate.
- ☐ Write out your summary of the activity's main ideas. How will you pull student work into that summary? Which parts of the activity can you skip to ensure that summary receives sufficient time?

## My Learning Targets:

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## Activity Screens: Teacher Pacing and Pause Class

Use this page to plan your use of Teacher Pacing and Pause Class. Teacher Pacing lets you restrict students to a single screen or a range of screens. Pause Class keeps students from interacting with whatever screens they are currently viewing. Use these two tools to create conversations in your classroom.

Consider these questions as you plan:

- Which screen(s) should everyone work on at the same time? Why?
- Which screen(s) do you want to keep students from seeing until you're ready for the class to see them together? (Perhaps because they reveal answers or require a whole class conversation for introduction.)
- Are there any points in the lesson where you will want to make sure students aren't playing with the screens while you discuss something as a class?

## Activity Screens

### 1 Do now: Test review

Be sure to: **reminder:**  
1. Grab a calculator. test tomorrow (Nov. 16)

### 2 Unit test review

1. Use the functions  $f(x) = \sqrt{x-2}$  and  $g(x) = 4x^2 + 1$  to find  $(f \circ g)(x)$ :

### 3 Unit test review

2. Find the domain for  $(f \circ g)(x)$ :

### 4 Unit Test Review

3a. Identify the vertex and x-intercepts for the graph of

### 5 Unit Test Review

3b. Apply the leading coefficient test to sketch the best representation for

### 6 Unit test review

4a. Divide using long division. Include a remainder if necessary:

### 7

4b. Divide using long division. Include a remainder if necessary:

### 8 Unit test review

Sketch the graph of the following function:

$$y = 5x^3 + 6x^2 + x$$

### 9 Unit test review: ...

• Exam tomorrow (Tues. Nov. 16)

• Topics to be covered:

1. Combining functions

a. arithmetic combinations

b. composition of functions

2. Polynomials:

**1** Do now: Test review

Be sure to:

1. Grab a calculator.

2. One

**reminder:**  
test  
tomorrow  
(Nov. 16)

Be sure to:

1. Grab a calculator.
2. One member of each group should log in to Google Classroom. Click on today's **Desmos activity**.
3. Pick one partner to be the **driver**. They will type your answers into Desmos. Everyone should have their **notebook** out for work. Please collaborate!
3. Write you and your partner's name below:

**Teacher Moves**

Go through each problem one at a time. Give groups time to work independently, then go over answers as a group.

My Notes:

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## 2 Unit test review

1. Use the functions  $f(x) = \sqrt{x-2}$  and  $g(x) = 4x^2 + 1$  to find  $(f \circ g)(x)$ :

### Teacher Moves

+What does  $(f \circ g)(x)$  mean?  $f(g(x))$ . so we just substitute in  $g(x)$  wherever we have  $x$  in  $f(x)$ .  
+How is  $f(g(x))$  similar to  $f(3)$ ? In both cases we're substituting in the expression in the parens for  $x$  in  $f(x)$ .

### Sample Responses

$$(f \circ g)(x) = f(g(x)) = \sqrt{(4x^2 + 1) - 2} = \sqrt{4x^2 - 1}$$

My Notes:

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**3** Unit test review2. Find the domain for  $(f \circ g)(x)$ :**Teacher Moves**

+What should we check whenever we have a domain problem? To see if  $x$  is in the denominator of a fraction or in a sqr. root. If it's in the former then the expression containing  $x$  cannot equal 0, in the latter it must be greater than or equal to 0, like in this problem.

**Sample Responses**

We know that the expression within the square root cannot be less than 0, so

$$4x^2 - 1 \geq 0$$

$$4x^2 \geq 1$$

$$x^2 \geq \frac{1}{4}$$

$$x \geq \frac{\sqrt{1}}{\sqrt{4}} = \frac{1}{2}$$

My Notes:

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**4** Unit Test Review

3a. Identify the vertex and x-intercepts for the graph of  $y = x^2 - 5x + 4$

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**Teacher Moves**

3a. Identify the vertex and x-intercepts for the graph of  $y = x^2 - 5x + 4$

+HDW find the vertex? Using the box method is useful here (model on board if necessary).

+HDW find the x intercepts? This is the same thing as finding the roots, so we set the equation equal to 0, we can use the quad. formula or the factors of +4. the second option makes the most sense here.

**Sample Responses**

+Use box method to find:  
vertex: (2.5, -4.25)

Use factors of 4 (x-1)(x-4):  
roots: 1, 4

to check your answer you can use the quad. formula, which will get you the same result.

My Notes:

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**5** Unit Test Review

3b. Apply the leading coefficient test to sketch the best representation

3b. Apply the leading coefficient test to sketch the best representation for  $y = x^2 - 5x + 4$ :

**Teacher Moves**

The highest exponent is even and the leading coefficient is positive, this tells us that the graph should have the shape of a smiley face.

**Sample Responses**

up, up

My Notes:

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**6** Unit test review

4a. Divide using long division. Include a remainder if necessary:

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$$4x^2 - 5x - 21 \div (x - 3)$$

**Teacher Moves**

4a. Divide using long division. Include a remainder if necessary:

$$4x^2 - 5x - 21 \div (x - 3)$$

+What do we do with a remainder  $r$ ? We add it to the end of the

answer as  $\frac{r}{x-3}$

**Sample Responses**

answer:  $4x+7$

My Notes:

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**7**

4b. Divide using long division. Include a remainder if necessary:

$$2x^2 + 7x - 4 \div (x - 3)$$

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$$2x^2 + 7x - 4 \div (x - 3)$$

### Teacher Moves

4b. Divide using long division. Include a remainder if necessary:

$$2x^2 + 7x - 4 \div (x - 3)$$

### Sample Responses

answer:  $2x+13$ , remainder 35

My Notes:

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**8** Unit test review

Sketch the graph of the following function:

$$y = 5x^3 + 6x^2 + x$$

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**Teacher Moves**

Sketch the graph of the following function:  $y = 5x^3 + 6x^2 + x$

- Find the real roots for this function  
+How can we simplify this expression? factor out the x, then solve the remaining quadratic  $5x^2 + 6x + 1$
- Apply the leading coefficient test:
- Find at least two additional points  
+HDW pick additional points? Think about points between the roots
- Sketch an appropriate graph:

**Sample Responses**

- $x = 0, -1, -\frac{1}{5}$
- x is odd and leading coeff. is pos, so it's going down on left and up on right.
- additional points to plot : -1/10, 0.5  
 $f(-1/10) = -0.045$   
 $f(0.5) = 2.625$
- use info to draw a sketch.

My Notes:

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- Exam tomorrow (Tues. Nov. 16)
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  - 1. Combining functions
    - a. arithmetic combinations
    - b.composition of functions

My Notes:

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Summary Notes:

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