

How to use Ximera

This course is built in Ximera.

Mathematics cannot be learned passively: it must be actively constructed by the person learning it. With this in mind, this course is built around solving problems!

Here are some examples. Play around with it, get it wrong, try the hints out. Don't be afraid to fail: **getting an answer wrong never hurts you.**

Example 1. *Some problems are multiple-choice:*

Multiple Choice:

- (a) *Don't pick me.*
- (b) *Not me either.*
- (c) *Pick me! ✓*
- (d) *Also an incorrect choice*

Feedback(attempt): Click on the choice that says "Pick me!"

Example 2. *Some problems are select-all that are correct:*

Select All Correct Answers:

- (a) *Don't pick me.*
- (b) *Pick me! ✓*
- (c) *Pick me too! ✓*
- (d) *I'm a correct choice too. ✓*

Feedback(attempt): Click on the choices "Pick me!" "Pick me too!" and "I'm a correct choice too."

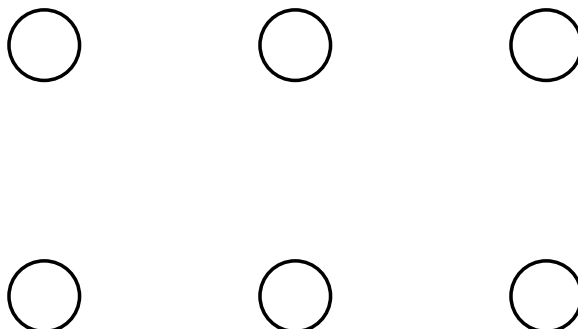
Example 3. *Some problems are fill in the blank:* $3 \times 2 =$

Hint: 3×2 is the number of objects in 3 groups of 2 objects

Learning outcomes:

Author(s):

See constructed at [http://en.wikipedia.org/wiki/Constructivism_\(philosophy_of_education\)](http://en.wikipedia.org/wiki/Constructivism_(philosophy_of_education))

**Hint:****Hint:** $3 \times 2 = 6$

For this course, you should always have a paper and pencil near at hand to make notes, doodle pictures, or solve complicated equations. We **strongly** recommend that you really **grapple** with a problem before getting a hint, or moving on. The difference between what you learn by struggling with a problem on your own versus perusing someone else's solution is astonishing.

With that said, even if you get an answer right you should **always** try the hints out afterwards. They might explain the concept from a new point of view, or challenge you to think in a different way than you solved the problem.

Many fill-in-the-blank problems expect algebraic expressions for answers. In the examples below, type the expression to the left of the equals sign:

Example 4. $\frac{x^2 + y^2}{7} =$

Feedback(attempt): Type `(x^2+y^2)/7`

Example 5. $\frac{\tan(x)}{2xa + b^2} =$

Feedback(attempt): Type `tan(x)/(2xa+b^2)`

Example 6. $\arcsin(x) =$

Feedback(attempt): Type `arcsin(x)`

Note that typing `sin^(-1)(x)` does not work.

Example 7. $|x| =$

Feedback(attempt): You can type `|x|` or `abs(x)`, but `abs(x)` may be preferable because it is easier to parse appropriately.

Example 8. $\ln(x + 1) =$

Feedback(attempt): You could type `ln(x+1)` or `log(x+1)`

Example 9. $\sin(\theta) =$

Feedback(attempt): Type `sin(theta)`

Example 10. $\varphi =$

Feedback(attempt): Type `phi`

Example 11. $\rho =$

Feedback(attempt): Type `rho`

Example 12. $\sqrt{x} =$

Feedback(attempt): Type `sqrt(x)`

Feedback(attempt): It would also work to type `x^(1/2)`

Example 13. $\sqrt[3]{y} =$

Feedback(attempt): We do not have a “slick” way to enter this, so you should just type `y^(1/3)`, which is equivalent.

Example 14. $DNE =$

Feedback(attempt): Type `DNE`, which means “Does Not Exist.”

Example 15. $\infty =$

Feedback(attempt): Type `infty` or `infinity` or `oo`.

As you complete activities the green “completion bar” moves at the top of the page. This lets you know how close you are to being done with an activity.

You advance through pages either by completing them and clicking the “next activity” button, or by navigating on the little scroll bar at the top of the page.