MTH1W Unit 4 Lesson W

Challenge Problems

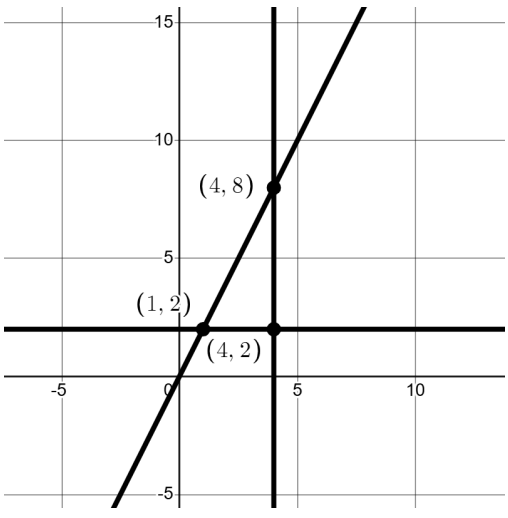
1. A circle has a radius of 10 cm. What radius of circle needs to be punched out of it, to *halve* its area?

2. A circle has a radius of *R* cm. What radius of circle needs to be punched out of it, to *halve* its area?

3. A sphere has a radius of 10 cm. What radius of sphere needs to be carved out of its centre to *halve* its volume?

4. A sphere has a radius of R cm. What radius of sphere needs to be carved out of its centre to *halve* its volume?

5. This grid has 1 unit = 1 cm →



This triangle is surrounded by 3 lines:
$y = 2x$ $x = 4$ $y = 2$

a) What is the area of this triangle?

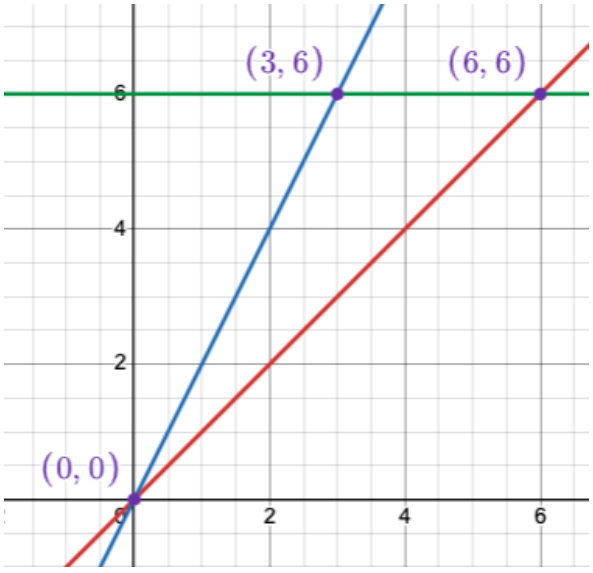
b) What would be the area bounded by these three curves?
$y = 4x$ $x = 4$ $y = 2$

6. Given the line $y = x$ (which is the same as $y = 1x + 0$)
Find two other lines that would help it enclose an area of 100 cm^2

7. Given the line $y = ax$ (which is the same as $y = ax + 0$)
Find two other lines that would help it enclose an area of 100 cm^2
(These lines will probably have to have *a* in their formula)

8. Here are the lines
$y = x$ $y = 2x$ $y = 6$

What is the area of this triangle?



9. Can you make a formula for the area bounded by any set of lines:
$y = x$ $y = 2x$ $y = d$ ($d > 0$)