

Work through the following problems and have your tutor check your solutions and record your name before the end of your Week 3 tutorial. You are encouraged to discuss these questions and your solutions with your peers and to ask your tutor for assistance. Working through ten sets of tutorial problems is compulsory and each of the ten problem sets will contribute 0.5% towards your final grade. Note that you earn the 0.5% for your effort in solving these problems during the tutorial rather than for answering all the problems correctly.

Once you have finished these problems, you can use the remainder of your tutorial time to work on other aspects of the course. Solutions to the tutorial problems will be distributed next week.

**Make sure you have finished last week's questions, particularly the equation solving ones.**

1. Find  $y$ , if  $|2y + 5| = 2$
2. Simplify  $y^3 x^{-2} x^3 x^{-2} \times y^2 \div x^2$
3. Simplify  $\frac{15y^{-2}y^1}{y^3y^1}$
4. Expand  $3z(3 + 6z)$
5. Expand  $(4 + 3x)(3 + 4x)$
6. Find  $x$ , if  $-2 = \frac{6x}{-3} - 2$
7. Find  $z$ , if  $-3 + \frac{-3}{5z} = 5$
8. Find  $y$ , if  $y = \frac{-15}{20} \div \frac{20}{-7}$
9. Write  $-7.6 < x < 9.0$  in interval form and mark it on a real line.
10. Write the interval  $[6.4, 12.6)$  using inequality signs and mark it on a real line.
11. Find  $z$ , if  $-1 = 3z - 6$
12. Find  $z$ , if  $-2z - 3 = 3$
13. Solve  $-4x - 3 \geq -3x + 2$ , then write your answer in interval format and mark it on a real line.
14. Find  $z$  if  $\sqrt{18z} = 9\sqrt{10}$
15. Find  $y$  if  $\sqrt{108} = y\sqrt{3}$
16. Expand and simplify  $(\sqrt{5} - \sqrt{3})\sqrt{2}$
17. Expand and simplify  $(\sqrt{8} - \sqrt{3})(\sqrt{6} - \sqrt{6})$
18. Let  $x = 4$ . Find  $z$ , if  $x = -6z + 6$

*Please turn over.*

19. Mayumi ate  $x$  pieces of sushi on her birthday. Rumi ate 4 more pieces than Mayumi. Together they ate a total of 26 pieces. Write an equation to find out how many pieces of sushi each person ate, and solve this equation.
20. Two hospitals have a total of 204 doctors. The number of doctors in one hospital is 20 less than three times the number of doctors in the other. Write an equation to work out how many doctors there are in each hospital, and solve this equation.
21. Write down the following expression: start with  $x$ , square it and add this to  $x$ . Divide all of this by  $x$ , then subtract 16. Subtract  $x$ , then divide everything by 3. What number do you get, regardless of what  $x$  is? Why? Show all working.