Australian Curriculum Year 7 Mathematics Sample assessment | Student booklet

Refreshing drinks

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| *Description: Yr7_Maths_DeliciousDrinks_PunchBowl* |
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| Students apply understanding of ratios, fractions and percentages to solve problems when mixing ingredients for fruity drinks. |
| **You will:**   * express the quantities of ingredients in mixed fruity drinks as ratios, fractions and percentages * solve problems involving mixing and adjusting the ratios of ingredients. |

## Section 1. Mei’s orange concentrate

A new brand of fruit juice concentrate called **Mei’s orange concentrate** is available at your local shop.

This type of fruit juice drink comes in a concentrated form. You need to mix water with it before it is ready to drink.

1. A glass contained the ratio shown below:

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|  |  | The ratio of concentrate to water is:  .......................................................... |
| water |
| concentrate |

1. The instructions on the bottle say to mix it in the ratio 1:7 (1 part concentrate to 7 parts water). Draw a picture to illustrate this ratio.

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1. You decide to try an overly concentrated drink and use 3 parts fruit juice concentrate. It’s too strong and you decide mix it in the ratio 1:7 according to the instructions on the bottle.
   1. How many parts of water should you add to the 3 parts fruit juice concentrate?

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* 1. Draw a picture to show the quantities of fruit juice concentrate and water used.

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* 1. Write this as a ratio. 3:
  2. Write this ratio as a fraction.
  3. Write an equivalent fraction in its simplest form. ...........

1. When the fruit juice concentrate is mixed with water in the ratio 1:7 …
   1. What fraction of the mixture is concentrate?  
      Show your working.

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* 1. What percentage (%) of the mixture is concentrate?  
     Show your working.

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* 1. What fraction of the mixture is water?  
     Show your working.

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* 1. What percentage (%) of the mixture is water?  
     Show your working.

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1. You like to keep some mixed drink in the fridge.
   1. To make a mixture using 400 mL of concentrate, how much water would you add?  
      Show your working, using answer/s from Question 4.

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* 1. How much mixed drink would this make?  
     Show your working.

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1. You need to mix 5.6 litres of mixed drink to take to sports training.
   1. How much concentrate and water do you need?  
      Show your working.

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1. One day you wrongly mix up some drink by adding 500 mL of concentrate to 1500 mL of water.
   1. What is the ratio of concentrate to water? (Express this ratio in its simplest form.)

* 1. Does the drink contain too much concentrate or too much water? Explain how you know.

* 1. How would you adjust the mixture so it is mixed correctly?  
     Show your working.

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## Section 2. Paradise punch

You volunteer to make up a fruit punch for a party.

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| Yr7_Maths_DeliciousDrinks_PunchBowl | Paradise punch |
| Mix lemonade,  ginger ale and  fruit juice in the  ratio 2:1:3. |

1. You decide to test your recipe by making a small amount in a glass, and then plan to make up a large bowl of fruit punch to take to the party.
   1. If you add 80 mL of lemonade to a glass, how much ginger ale and fruit juice would you have to you add?

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* 1. How much Paradise punch does this make?

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* 1. Express the ratio of each ingredient as a percentage of the whole.

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1. When you arrive at the party, you have left your measuring jug at home so you have to measure the ingredients using a cup.

You put one cup of lemonade in the punch and then add the other ingredients.

* 1. How many cups of the other ingredients would you add?

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* 1. How many cups of punch does this make? Show your working.

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You want to make up enough punch so everyone can have 4 cups each. There are 12 people at the party.

1. How many cups of each ingredient would you use? Show your working

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