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| Name:  Teacher: | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | Date:\_\_\_\_\_\_\_\_\_ |
|  | **Year 11 Mathematics Essentials**  SCORE: /    **Topic – Percentages, Ratios and Rates**  ***Full working out MUST be shown to get full marks for each question.*** | | |
| **Total Time:** | minutes |  | |
| **Weighting:** | % |
| **Equipment:** | To be provided by the student: Pens and Pencils, scientific calculator, A4 page of notes. | | |

1. Hillzeez Surf Shop is having a Winter Sale to clear out their Summer gear. [3]
   1. If a T-shirt that normally costs $40 is on sale for 15% off what is the new sale price? [1 mark]
   2. Oakley sunglasses used to cost $250 but are now $195. What percentage discount is this? [1 mark]
   3. A pair of Scuba fins is marked down by 30% and now costs $80. What was the original cost? [1 mark]
2. Investing and saving [8]
   1. A bank offers 3% per annum interest on deposits for six months. If Heidi invests $5000 how much interest will she receive at the end of six months? [2 marks]
   2. Chris owes $4000 on his credit card but can only pay back $2000 on time, so has to pay interest on the remainder. If the interest rate is 18% p.a. how much interest does he have to pay after the first month? [2 marks]
   3. Tiara has been saving her pay for ten years and has managed to save $80,000. If she invests that money in shares that pay her 6% p.a. how much money would she receive each year? [2 marks]
   4. Jaykob would like to retire early and has worked out that he needs $3000 per month to live on. If the bank will pay 3% p.a. on deposits how much would he have to save up in order to retire? [2 mark]
3. Ratios [4]
   1. In a class of 40 students there are 15 girls; write this as a simplified ratio [2 marks]
   2. What percentage of the class was boys? [1 mark]
   3. How many girls would need to join the class to make the ratio 1:1? [1 mark]
4. Three friends bought a lottery ticket for $20; Sophie put in $10, Karen paid $6 and Tony paid $4. They agreed that if they won anything they would split it in the ratio of the money they each put in. [3]
   1. What is the simplified ratio of the amount each person paid? [1 mark]
   2. If they won $100, 000 how much would each person get? [2 marks]
5. Rates

If you leave Baldivis heading up the freeway to the city and you drive at 100km/hr how long will the 60km trip take you?

* 1. On the return trip there is lots of traffic and the trip take 1hr and 15 minutes. What is your average speed coming home?

A local cyclist thinks that she can ride her bike as faster than Usain Bolt can run; if the cyclist timed herself over 1km and it took 2 minutes, and Usain Bolt’s 200m record is 20 seconds which one is going the fastest?

* 1. Barry is planning to drive to Kalgoorlie for the long weekend, which is 750km away. If he drives at 110km/hr how long should the trip take?
  2. If he stops for two 30 minute fuel/rest breaks on the way what would be his average speed for the whole trip?

Best Buy/Unitary Method

1. The Spud Shed normally sells a large (10 kg) bag of Potatoes for $12, or a medium (4 kg) bag costs $5. Loose potatoes (pick as many as you want) cost $1.80 / kg.
   1. Put the three options in order from best value for money to worst value (show your working) [3 marks]
   2. If you are cooking a meal that requires 3 kg of potatoes which option would cost the least? [2 marks]
2. Buying Petrol

At Mad Mike’s Petrol Station there is a special promotion happening that lets customers fill up their tank for a flat price of $80 regardless of how much fuel they buy.

Next door is Baldy’s Boring Petrol Station which has no specials, just the standard price of 147.9 cents/Litre.

* 1. If your tank is nearly empty and it normally takes 55 Litres to fill up, which petrol station is going to give you the best value for money? [ 2 marks]
  2. How much would you save with this option? [1 mark]
  3. In Mad Mike’s they sell six-packs of Coke for $15. How much does each can cost? [1]