

# 8.20 - Questions Handout #s 4 - 18

## Check Your Understanding

### Practise

Remember to include proper units in all rates and unit rates.

For help with questions 4 and 5, refer to Example 1.

4. Vera earns \$8.00/h working at a coffee shop. How much will she earn in
  - a) a 4-h shift?
  - b) a 35-h work week?
  
5. Don is paid \$9.25/h. How much does he earn in
  - a) a 7-h day?
  - b) a 37-h work week?

For help with questions 6 and 7, refer to Example 2.

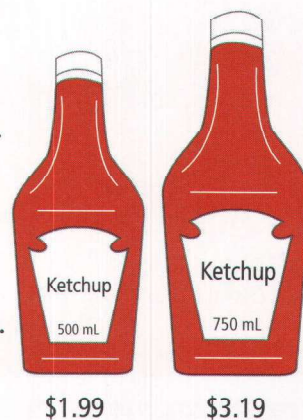
6. Find the unit rate in each situation.
  - a) Edmund rode his bicycle 60 km in 3 h.
  - b) Sasha earned \$68 in 8 h.
  - c) Ron was charged \$84 for a 7-h canoe rental.
  
7. What is the unit rate in each?
  - a) The road crew painted 8 km of highway lane markers in 2 days.
  - b) The temperature rose  $12^{\circ}\text{C}$  in 5 h.
  - c) The tomato plant produced 36 tomatoes in 6 weeks.

For help with questions 8 and 9, refer to Example 3.

8. Find the unit price for each item.
  - a) Fish costs \$25.20 for 4 kg.
  - b) Shampoo costs \$2.95 for 250 mL.
  - c) A can of apple juice costs \$1.35 for 900 mL.

9. Kiki is shopping for ketchup. Her favourite brand is available in two sizes.

- a) Estimate which is the better buy. Explain your choice.
- b) Justify your choice. Show calculations to support your reasoning.



### Apply

10. A plane is cruising at a steady speed of 500 km/h.
  - a) How far will the plane travel in 4 h?
  - b) How long will it take the plane to travel 3000 km?
  
11. Ariel has scored 96 points in 8 games so far this season.
  - a) What is her unit rate of scoring?
  - b) At this rate, how many points can Ariel expect to score during a 24-game season?
  
12. Pietro runs 200 m in 30 s, while his sister Wanda runs 300 m in 36 s.
  - a) Who is the faster runner? Explain how you can tell.
  - b) How far will each runner go in 2 min?
  - c) How long would it take for each runner to travel 1 km? State any assumptions that you must make.
  
13. Each week, Karla earns \$420 for 35 h of work at a factory. Her friend Enzo makes \$440 for 40 h of work at a store.
  - a) Who has the greater hourly rate of pay?
  - b) How much does Enzo earn in an 8-h shift?



14. It takes Famke 10 min to type one quarter of her 1000-word essay.

- What is Famke's average typing speed, in words per minute?
- At this rate, how long will it take for Famke to finish typing her essay?

15. A 500-g package of pastrami costs \$6.25.

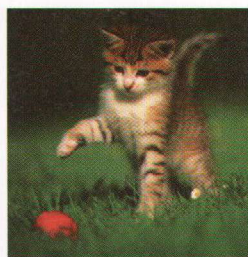
- Determine the unit price per 100 g.
- What would 750 g of pastrami cost?
- How much would 2 kg cost?

### Chapter Problem

16. The forecast for an outdoor concert is sunny and hot. Because there is no shade for the audience, each person should drink at least one 500-mL bottle of water every 2 h.

- How many millilitres will each person need for a 10-h concert? How many litres is this?
- How many litres should you have available, if you expect 1000 people to attend?
- At the 2003 Rolling Stones concert in Toronto, almost 500 000 people attended. It was a hot, sunny day with no shade. If everyone stayed for the entire concert, how many litres of water were needed?

17. The makers of Purr 'n' Chew cat food want to price their cat food so that it costs just less than their main competitor, Happy Kitty.

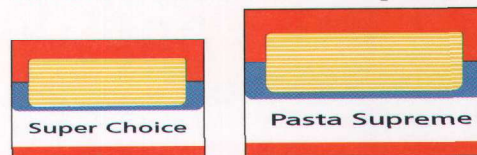


A 5-kg bag of Happy Kitty costs \$12.99.

- What is the maximum price that Purr 'n' Chew should charge for their 4-kg bag of cat food?
- Explain how you found this price.



18. Two brands of noodles are shown. The noodles are of the same quality.



700 g  
99¢

1.25 kg  
\$1.29

- Without calculating, which do you think is the better buy? Explain your decision.
- Find the unit price per 100 g for each brand.
- Which is the better buy? Explain your choice. Compare it with your prediction.
- Explain why estimating unit costs is useful when grocery shopping.

### Extend

19. Rose uses prices from a shopping flyer to prepare her grocery list. Rose has no cash left, so she stops at the bank machine to make a withdrawal. The machine only gives \$10 and \$20 bills.

Item	Price	Quantity
potatoes	45¢/kg	5 kg
eggs	\$1.89/dozen	2 dozen
chicken	\$1.29/100 g	500g
cole slaw	49¢/100 ml	750 mL

- Estimate the minimum amount that Rose should withdraw to pay for the groceries.
  - Find the exact amount that Rose will need to pay.
  - How much change will Rose receive?
20. Hans jogs at an average speed of 8 km/h.
- How far will he jog in 45 min?
  - How much faster will Hans need to jog in order to run the same distance in 40 min? Explain your reasoning.
21. Refer to the running race at the start of this section. Suppose Raoul doubles his speed at the halfway point. Who will win the race? By how much time? Show how you found your answers.