

# 7 MUST KNOW QUESTIONS TO CONQUER

## PERCENTAGE

1	(a) Bob's monthly salary was \$4000. His salary was increased by 20%. Calculate his new salary.	[1]																				
	(b) Sarah spends 23% of her savings on a computer that costs \$1850. What is the total amount of savings she had <b>before</b> she spent on the computer? Give your answer to 2 decimal places.	[1]																				
2	Mr. Wong made a 1.30 pm restaurant reservation at Orchard Road for his family lunch. He plans to arrive 15 minutes before the reservation timing, and leave at 4.00pm. Parking rates for two different shopping malls in the area are shown below.																					
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	(a) Explain, with working, which shopping mall should Mr. Wong Park at.																					
	(b) At the restaurant, Mr. Wong and family ate a total of \$135 worth of food. When the bill arrived, it was \$158.90. Mr. Wong claimed that with 17% Service Charge and GST, the bill that arrived was wrong. His working is shown below.	[2]																				
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	Evaluate Mr. Wong's working and explain, with working to support your answer, if Mr. Wong's claim is accurate and why.	[3]																				

3

fusion spoon		
28/08/2020	20:05	A021103
Table: 17	Pax: 2	
Waiter: Rick		
2	Ala-carte Steamboat Buffet	65.60
2	Soup Base	6.00
2	Free-flow Soft Drinks	4.00
	SUBTOTAL	75.60
	10% Membership discount	(a)
	10% Service charge	6.80
	7% GST	(b)
	TOTAL BILL	(c)

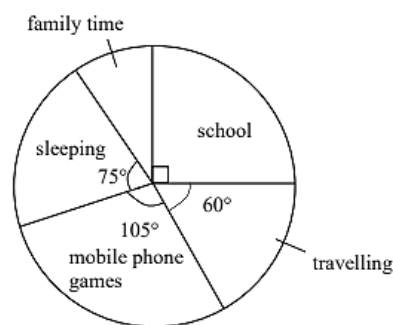
Gregory and Mark went for an ala-carte steamboat dinner at Fusion Spoon Restaurant. Their dinner consisted of the items: ala-carte steamboat buffet, soup base and soft drinks. If they enjoyed a Membership discount of 10% of all items on the menu, find the amount of

- (a) Membership discount,
- (b) GST,
- (c) Total bill

[1]  
[2]  
[1]

4

The pie chart below shows the activities of Alex in a day. There are 24 hours in a day.



- (a) Express the amount of time he spent on mobile phone games as a percentage of all the time he has in a day.
- (b) Find the ratio of time spent on family time to school.
- (c) Bob sleeps twice as long as Alex in a day. How many hours does Bob sleep in a day?
- (d) Explain why it is better to represent the time Alex spent on activities in a day as a pie chart and not a bar graph.

[2]  
[2]  
[2]  
[1]

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5	Joey paid \$28.80 for a pair of shoes after a discount of 25% from a departmental store. What is the original price of the shoes?	[1]
6	(a) Class <i>Y</i> had 11 out of 35 students scoring distinction for a Mathematics test. Class <i>Z</i> has 12 out of 38 scoring distinction for the same test. Which class had a higher percentage of students scoring distinction? Show your working clearly. (b) The cost price of a watch was \$1200. It was sold for a price of \$960. Find the percentage decrease in price.	[2]     [1]
7	Every year, the value of a car depreciates by 15% of its value in the previous year. If the value of the car was \$114 155 in 2019, find its value in 2017.	[2]

**Answer Key**

1	<p>Solutions:</p> <p>(a) <math>\frac{4000}{100} \times 120 = \\$4800</math></p> <p>(b) <math>\frac{1850}{23} \times 100 = \\$8043.48</math></p> <p>Ans: (a) \$4800 (b) \$8043.48</p>
2	<p>Ans:</p> <p>(a) Ion Orchard = <math>2.56 + 1.88 \times 4</math>  <math>= 10.08</math>                      Somerset 313 = <math>3 + 1.28 \times 4</math>  <math>= 8.12</math>                      Mr. Wong should park at Somerset 313.</p> <p>(b) Actual bill:                      With Service Charge = <math>\frac{110}{100} \times 135</math>  <math>= 148.50</math>                      With GST = <math>\frac{107}{100} \times 148.50</math>  <math>= 158.895</math>  <math>\approx \\$158.90</math>                      Mr. Wong's claim is wrong as he combined Service Charge and GST to get 17%, therefore the total cost would only be \$157.95. But 7% GST is applied on top of the 10% Service Charge, hence the bill of \$158.90 is correct.</p>
3	<p>Solutions:</p> <p>(a) Membership discount = <math>0.1 \times 75.60</math>  <math>= \\$7.56</math></p> <p>(b) GST amount = <math>0.07 \times \\$(75.60 - 7.56 + 6.80)</math>  <math>= \\$5.24</math></p> <p>(c) Total bill amount = <math>\\$(75.60 - 7.56 + 6.80 + 5.24)</math>  <math>= \\$80.08</math></p> <p>Ans: (a) \$7.56 (b) \$5.24 (c) \$80.08</p>
4	<p>Solutions:</p> <p>(a) <math>\frac{105}{360} \times 100 = 29.2\%</math></p> <p>(b) <math>360 - 75 - 60 - 105 - 90 = 30 = 30:90 = 1:3</math></p> <p>(c) <math>\frac{75}{360} \times 24 = 5</math>  <math>5 \times 2 = 10</math> hours                      It easier to compare how much time he spends on each activity relative to the total amount of time he has in a day.</p> <p>Ans: (a) 29.2% (b) 1:3 (c) 10 hours</p>

5	Ans: Original price of shoes = $\frac{100}{75} \times \$28.80 = \$38.40$	
6	<p>Solutions:</p> <p>(a) Class Y = <math>\frac{11}{35} \times 100\%</math> = 31.42%</p> <p>Class Z = <math>\frac{12}{38} \times 100\%</math> = 31.57%</p> <p>Class Z scored better.</p> <p>(b) Percentage decrease = <math>\frac{1200-960}{1200} \times 100\%</math> = 20%</p> <p>Ans: (a) 31.57% (b) 20%</p>	
7	Ans: $\$ \frac{114155}{(0.85)^2} = \$158000$	