

Consumer Arithmetic Topic Test - SEP 2010

Directions	<ul style="list-style-type: none">• Full working should be shown in every question.• Mark may be deducted for careless or badly arranged work.• Use black or blue pen only.	Student Name : _____ Mark : _____
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- a) Calculate the net income if gross income is \$1250 and tax is \$278.20.
- b) A stockbroker earns an annual salary of \$82460. Calculate her total holiday pay if she takes her annual 4 weeks leave in May.
2. a) A ferry master is paid \$13.80 per hour for a 40-hour week, with overtime paid at the time and a half rate.
- i) Find his net pay for a week when he worked for 45 hours and had PAYG tax deductions of \$229.98
- ii) What percentage of his gross pay was paid in tax? (Answer correct to nearest whole percentage.)

- b) Christie wanted to buy a particular pair of jeans for \$130 but didn't have enough money so she decided to lay-by them. The store requires an initial amount of 20% of the cost of the jeans.

i) How much did Christie pay to begin the lay-by?

ii) If Christie pays off \$20 per week, how long will it be until she owns the jeans?

3. a) Giulia needs to purchase a jar of olives. There are three different jars of her favourite brand on the shelves at the Supermarket. The 700 g jar costs \$3.50, the 450 g jar costs \$2.20 and the 300 g jar costs \$1.90. Which size jar Offers best value for money?

- b) A sewing machine is priced for sale at \$480. The sewing machine is discounted by 15% during the mid-year sale, and a customer is given a further 5% discount for paying by cash. Find the purchase price of the sewing machine.

4. At our school fete we charged each of the 687 people who attended an entrance fee of \$1.50 and received \$5860.50 from the sale of goods. We paid out \$380 for music, \$158 for decorations and prizes, \$74 for cleaning and \$465 for advertising. How much money did we make, and what percentage was this of the sum received?



5. Explain why the GST on an item can be found by dividing its selling price by 11. Justify your answer by giving one example.

6. Is a discount of 10% following a discount of 15% the same as a discount of 25%? Justify your answer, giving examples and reasons.

7. Find the taxable income of an employee who paid \$13358.20 in tax?

Taxable Income	Tax on this income
\$1 - \$ 6000	Nil
\$ 6001 - \$ 20,000	17 cents for each \$ 1 over \$6000
\$ 20001 - \$ 50000	\$ 2380 + 30 cents for each \$ 1 over \$20000
\$ 50001 - \$ 60000	\$ 11380 + 42 cents for each \$ 1 over \$50000
\$ 60001 and over	\$ 15580 + 47 cents for each \$1 over \$ 60000

Consumer Arithmetic Topic Test

21/21

Directions	<ul style="list-style-type: none"> Full working should be shown in every question. Mark may be deducted for careless or badly arranged work. Use black or blue pen only. 	Student Name:	Mark:
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1. a) Calculate the net income if gross income is \$1250 and tax is \$278.20.

$$\begin{aligned} \text{Net income} &= \$1250 - \$278.20 \\ &= \$971.80 \end{aligned}$$

b) A stockbroker earns an annual salary of \$82460. Calculate her total holiday pay if she takes her annual 4 weeks leave in May.

$$\begin{aligned} \text{Weekly pay} &= \frac{\$82460}{52} \\ &= \$1585.769 \\ &\approx \$1585.77 \end{aligned}$$

$$\begin{aligned} \therefore \text{Holiday pay} &= 1.75 \times \$6343.08 \\ &= \$7453.119 \\ &\approx \$7453.12 \end{aligned}$$

2. a) A ferry master is paid \$13.80 per hour for a 40-hour week, with overtime paid at the time and a half rate.

i) Find his net pay for a week when he worked for 45 hours and had PAYG tax deductions of \$229.98

$$\begin{aligned} \text{Weekly net pay} &= [(40 \times \$13.80) + 5(1.5 \times \$13.80)] - \$229.98 \\ &= (\$552 + \$103.50) - \$229.98 \\ &= \$655.50 - \$229.98 \\ &= \$425.52 \end{aligned}$$

ii) What percentage of his gross pay was paid in tax? (Answer correct to nearest whole percentage.)

$$\begin{aligned} \text{Gross pay} &= \$655.50 \\ \$229.98 \div \$655.50 &= 0.35 \end{aligned}$$

∴ 35% was paid in tax

b) Christie wanted to buy a particular pair of jeans for \$130 but didn't have enough money so she decided to lay-by them. The store requires an initial amount of 20% of the cost of the jeans.

i) How much did Christie pay to begin the lay-by?

$$0.2 \times \$130 = \$26$$

∴ Christie had to pay \$26 to begin the lay-by

ii) If Christie pays off \$20 per week, how long will it be until she owns the jeans?

$$\begin{aligned} \$130 - \$26 &= \$104 \\ \frac{\$104}{20} &= 5.2 \end{aligned}$$

∴ It would take her 5.2 weeks to own the jeans

3. a) Giulia needs to purchase a jar of olives. There are three different jars of her favourite brand on the shelves at the Supermarket. The 700 g jar costs \$3.50, the 450 g jar costs \$2.20 and the 300 g jar costs \$1.90. Which size jar offers best value for money?

$$\begin{aligned} \text{① } \frac{700\text{g}}{14} &= \frac{350}{14} & \text{② } \frac{450\text{g}}{9} &= \frac{220}{9} & \text{③ } \frac{300\text{g}}{6} &= \frac{190}{6} \\ 50\text{g} &= 25\text{¢} & 50\text{g} &= 24.44\text{¢} & 50\text{g} &= 31.67\text{¢} \end{aligned}$$

∴ The 450g jar is the jar size that offers best value for money

b) A sewing machine is priced for sale at \$480. The sewing machine is discounted by 15% during the mid-year sale, and a customer is given a further 5% discount for paying by cash. Find the purchase price of the sewing machine.

$$\begin{aligned} & \$480 \times (1.00 - 0.15) \\ &= \$480 \times 0.85 \\ &= \$408 \times (1.00 - 0.05) \\ &= \$408 \times 0.95 \\ &= \$387.60 \end{aligned}$$

∴ The final purchase price would be \$387.60 for the sewing machine

7.

4. At our school fete we charged each of the 687 people who attended an entrance fee of \$1.50 and received \$5860.50 from the sale of goods. We paid out \$380 for music, \$158 for decorations and prizes, \$74 for cleaning and \$465 for advertising. How much money did we make, and what percentage was this of the sum received?

$$\begin{aligned} \text{Sum received} &= (687 \times \$1.50) + \$5860.50 \\ &= \$1030.50 + \$5860.50 \\ &= \$6891 \end{aligned}$$

∴ You made \$5814 in profit which was 84% of the sum received.

$$\begin{aligned} \text{Profit} &= \$6891 - (\$380 + \$158 + \$74 + \$465) \\ &= \$6891 - \$1077 \\ &= \$5814 \\ \$5814 \div \$6891 &= 0.843 \\ &= 0.84 \text{ (2 dp)} \end{aligned}$$

5. Explain why the GST on an item can be found by dividing its selling price by 1.1. Justify your answer by giving one example.

The GST of an item is 10% of the price added on top

100% = price
10% = GST
Example: A toy is \$15 without GST
Toy = \$15
After GST = \$15 + (0.1 × \$15) = \$16.50
(selling price) = \$15 + \$1.50 = \$16.50

$$\begin{aligned} \text{Selling price} &= 100\% (\text{selling price}) + 10\% (\text{GST}) \\ &= 110\% \end{aligned}$$

6. Is a discount of 10% following a discount of 15% the same as a discount of 25%? Justify your answer, giving examples and reasons.

① One discount: $\$100 \times (1.00 - 0.25) = \$100 \times 0.75 = \$75$

② Number of discounts: $\$100 \times (1.00 - 0.1) = \$100 \times 0.9 = \$90$
 $\$90 \times (1.00 - 0.15) = \$90 \times 0.85 = \$76.5$

∴ The GST of an item can be found by dividing it by 1.1

∴ The one discount of 25% is not the same as multiple discounts of 10% and 15%.

Find the taxable income of an employee who paid \$13358.20 in tax?

Taxable income	Tax on this income
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$$\begin{aligned} \$13358.20 &- \$11380 \\ &= \$1978.20 \end{aligned}$$

$$\begin{aligned} \frac{\$1978.20}{0.42} &= \$4710 \end{aligned}$$

$$\begin{aligned} \text{Taxable income} &= \$50,000 + \$4710 \\ &= \$54,710 \end{aligned}$$