

# Answer booklet

## Money Matters

AS91026 Apply numeric reasoning in solving problems | Te whakamahi whakaaro tau whaitake hei whakaoti rapanga (version 3)

Mathematics and Statistics

**Level:** 1

**Credits:** 4

**Sorted themes:**

KiwiSaver

Debt

Goals

Managing my Money

## Topic One - Understanding your payslip

**Topic 1 Activity 1**

b.

|  |  |
| --- | --- |
| IRD number | This is an eight or nine-digit number that only you have. It is given to you by the Inland Revenue Department (IRD). This number will be on all of your payslips and KiwiSaver statements when you are working. |
| Pay period | This is the length of time that the payslip relates to, for example, a week, a fortnight, or a month. |
| Hours worked | These are the total hours that you have worked over this pay period. |
| Overtime | These are the extra hours that you have worked in this pay period. These are above what you have agreed in your employment contract. |
| Gross pay | The amount that you earn before deductions such as tax are taken off. |
| Net pay | This is the amount that you will have in your pay packet each week or fortnight after the deductions have been taken out. |
| PAYE tax | For every dollar you earn you will have to pay tax. The amount that you pay will depend on how much you earn.  |
| KiwiSaver | This is a voluntary government investment scheme to help you save for your retirement. If you have a salary, you can choose to contribute 3%, 4%, 6%, 8% or 10% of your gross pay. Your employer will also contribute at least 3% to help your fund grow. After contributing to it for three years, you can use your funds to help buy your first home. |
| Holiday pay | You are entitled to a number of holiday days each year and the amount you have are shown on your weekly/fortnightly payslip. |
| Sick pay | You are entitled to a number of paid sick days each year and the amount you have are shown on your weekly/fortnightly payslip. |

**Topic 1 Activity 2**

|  |  |  |
| --- | --- | --- |
| **Fraction** | **Decimal** | **Percentage** |
| $$\frac{1}{2}$$ | 0.5 | 50% |
| ¼  | 0.25 | 25% |
| ¾  | 0.75 | 75% |
| ⅛  | 0.125 | 12.5% |
| $$\frac{5}{8}$$ | 0.625 | 62.5% |
| $$\frac{3}{20}$$ | 0.15 | 15% |
| $$\frac{1}{50}$$ | 0.02 | 2% |
| $$\frac{57.5}{50}$$ | 1.15 | 115% |

**Topic 1 Activity 3**

a.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Figure Electrical Ltd |  | IRD Number | 027-598-412 | Annual leave available | 7.5 days |
| Roimata Paerata |  | Tax Code | MSL | Sick leave available | 3.0 days |
| 16 Main Road |  |  |  |  |  |
| Greytown |  |  |  |  |  |
|  |  |  |  |  |  |
| Period End | 01/06/2018 |  |  |  |  |
| Annual Salary | $37,970 |  |  |  |  |
|  |  |  |  |  |  |
| **Description** | **Quantity** | **Units** | **Rate** | **Total** | **This Pay** |
| Ordinary time | 41.00 | Hours | $18.25 | $748.25 |  |
| Overtime | 2.50 | Hours | $22.81 | $57.03 |  |
| **Gross Pay** |  |  |  |  | **$805.28** |
|  |  |  |  |  |  |
| Income Tax (PAYE) |  |  |  |  | -$122.08 |
| ACC Levy |  |  |  |  | -$11.19 |
| Student Loan Repayment |  |  |  |  | $0.00 |
| Kiwisaver |  |  |  |  | $0.00 |
| **Net Pay** |  |  |  |  | **$672.01** |
|  |  |  |  |  |  |
| KiwiSaver Employer Contribution |  |  |  |  | $0.00 |

Note: Did you remember to include a dollar sign and round the amounts to 2 decimal places?

b. ($122.08 + $11.19) ÷ $805.28 x 100% = 16.55%

c. 0.06 x $805.28 = $48.32

**Topic 1 Activity 4**

a.

|  |  |  |  |
| --- | --- | --- | --- |
| **For each dollar of income** | **Income tax rate****in percentage form** | **Income tax rate****in decimal form** | **Income tax rate****in the simplest fraction form** |
| Up to $14,000 | 10.5%  | 0.105 | $$\frac{21}{200}$$ |
| Over $14,000 and up to $48,000 | 17.5%  | 0.175 | $$\frac{7}{40}$$ |
| Over $48,000 and up to $70,000 | 30%  | 0.3 | $$\frac{3}{10}$$ |
| Over $70,000 and up to $180,000 | 33%  | 0.33 | $$\frac{33}{100}$$ |
| Over $180,000 | 39% | 0.39 | $$\frac{39}{100}$$ |

b.

i. Tax payable on $25,000:

= (0.105 x $14,000) + 0.175 x ($25,000 - $14,000)

= $3,395

ii. Tax payable on $50,000:

= (0.105 x $14,000) + 0.175 x ($4,8000 - $14,000) + 0.3 x ($50,000 - $48,000)

= $8,020

iii. Tax payable on $75,000:

 = (0.105 x $14,000) + 0.175 x ($48,000 - $14,000) + 0.3 x ($70,000 - $48,000) + 0.33 x ($75,000 - $70,000)

= $15,670

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## Topic Two: Buying goods and services

**Topic 2 Activity 1**

1.

1. $1,250 x 1.15 = $1,437.50
2. $3,200 x 1.15 = $3,680
3. $44.50 x 1.15 = $51.18

2.

1. $2,300 ÷ 1.15 = $2,000
2. $82.75 ÷ 1.15 = $71.96
3. $1,250 ÷ 1.15 = $1,086.96

3. $825 ÷ 1.15 = $717.39

$825 - $717.39 = **$107.61**

**Topic 2 Activity 2**

i. Monika will pay $92.14 and Dannielle and Esther will each pay $61.43

ii. Monika will pay $27.86 and Dannielle and Esther will each pay $18.57

1. Monika will pay $41.50, Dannielle will pay $10.38 and Esther will pay $31.13
2. Monika and Dannielle will each pay $65.63 and Esther will pay $43.75

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## Topic Three: Borrowing money

**Topic 3 Activity 1**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Month** | **Balance owed** | **Monthly interest at 2% per month** | **Amount paid** | **New balance** |
| May | $3,800.00 | $76.00 | $150 | $3,726.00 |
| June | $3,726.00 | $74.52 | $150 | $3,650.52 |
| July | $3,650.52 | $73.01 | $150 | $3,573.53 |
| August | $3,573.53 | $71.47 | $150 | $3,495.00 |
| September | $3,495.00 | $69.90 | $150 | $3,564.90 |

1. answers will vary.
2. 36 x $150 = $5400
3. Percentage increase = $\frac{\$5,400 - \$3,800}{\$3,800} ×100 = 42.1\%$

**Topic 3 Activity 2**

1. $55 + ($1.80 x 24) = $98.20
2. $499 ÷ 24 = $20.79

**Topic 3 Activity 3**

1. 5 years = 60 months

$252 x 60 = $15,120

1. $15,120 - $12,000 = $3,120
2. $3,120 - $2,686 = $434.

**Topic 3 Activity 4**

1. 1 year = 26 fortnights

$20,020 ÷ 26 = $770

1. ($860 - $770) x 0.12 = $10.80

## Topic Four - Saving for a goal

**Topic 4 Activity 1**

1. $4,000 x 0.01 = $40
2. $10,000 x 0.0105 = $105
3. $3,000 x 0.025 = $75
4. $2,000 x 0.0085 = $17

**Topic 4 Activity 2**

1. $2,680.25
2. $848.56
3. Interest earned on option A = $1,200 x 0.0425 x 5 = $255

Interest earned on option B = $1,200 x 1.03755 - $1,200

= $242.52

The higher interest rate for Option A makes this the best option.

d. $\$5,000 =P\left(1+\frac{3.75}{100}\right)^{6} $

$$P = \$5,000 ÷1.0375^{6}$$

$$P = \$4009.05$$

Wayne should invest $4,009.

**Topic 4 Activity 3**

1. $24 x 5 x 5 x 2 = $1,200
2. Meleane invests 4% of her pay in Kiwisaver each fortnight. Her employer contributes 3% of Meleane’s gross pay and the government puts in 50 cents for every dollar Meleane contributes (up to a maximum of $521 per year).
	1. 0.04 x $1,200 = $48
	2. $48 x 26 = $1,248

$1,248 ÷ 2 = $624

Yes, Meleane is contributing more than the $1,042 needed to get the maximum government contribution.

* 1. ($48 + 0.03 x $1,200) x 26 + $521 = $2,705

**Topic 4 Activity 4**

a. $18 x 8 x 5 = $720

b. $720 x 52 = $37,440.

c. 0.06 x $37,440 = $2,246.40

d. 0.1 x $550,000 = $55,000

e. 0.08 x $37,400 + 0.03 x $37,400 + $521 = $4,635

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## Topic Five - Tools that support financial decisions

**Topic 5 Activity 1**

a.

Over the past 5 months, Joe has saved, on average, $360 per month.

If he sticks to the level of saving, in the next six months he will save a further $360 x 6 = $2,160.

Total saved = $1,800 + $2,160 = $3,960. This is a shortfall of $520.

Joe will either need to reduce his spending or increase the timeframe needed to reach his goal.

b. Joe needs to save an additional $20 per week to reach his goal.

6 months = 26 weeks

$520 $÷$26 = $20

Joe could achieve this by reducing his spending or by working an extra 1.5 hours each week.

**Topic 5 Activity 2**

Here are the fortnightly expenses for a flat shared by seven people:

|  |  |  |
| --- | --- | --- |
| Expenses |  | Fortnightly |
| Groceries - including toiletries | $1,200 |
| Cat food | $30 |
| Savings for end of year party | $10 |
| Other fortnightly costs | $50 |

Monthly Expenses:

|  |  |
| --- | --- |
| **Expenses** | Monthly |
| Rent to landlord | $4,900 |
| Electricity | $350 |
| Internet | $100 |
| Media subscriptions (Netflix, Sky etc) | $80 |
| Contents insurance | $100 |
| TV Hire | $45 |

1. $990 + $5575 x 12 ÷ 26 = $3,563.08
2. $3563.08 ÷ 5 = $712.62
3. $4900 ÷ 12 x 2 = $816.67

**Topic 5 Activity 3**

1. Total payments = $31.64 x 48 months

= $1,518.72

 Interest and fees = total cost - cost of the fridge and delivery

= $1,518.72 - ($978 + $89)

= $451.72

1. $\frac{\$1,518.72 - \$1,067}{\$1,067}×100\% = 42.33 \%$