NEW CENTURY MATHS 11 MATHEMATICS STANDARD (PATHWAY 2)

FULLY WORKED SOLUTIONS

Chapter 3

SkillCheck

Question 1

- **a** \$17.60 × 5 = \$88
- **b** $$3.10 \times 1.5 = 4.65
- **c** $$1.15 \times 1400 = 1610

Question 2

- **a** $$42568 \times 34 \div 100 = 14473.12
- **b** $$153\ 000 \div 52.18 = $2932.1579\ldots$

 \approx \$2932.16

c $\$85\ 629 \times 1.5 \div 100 = \1284.435

 $\approx\$1284.44$

Question 3

 $\frac{2360}{36\ 580} \times 100\% = 6.451... \approx 6\%$

Question 4

a Do the multiplication from left to right, then the addition from left to right.

 $36 \times 22.5 + 4 \times 22.5 + 3 \times 22.5 \times 2 = 810 + 90 + 135$ = 1035

(OR 36 lots of 22.5 plus 4 lots of 22.5 plus 6 lots of 22.5, which is 46 lots of 22.5 46×22.5=1035)

b Start with the brackets, then do the multiplication and finally the addition.

 $58\ 000 + 0.45 \times (250\ 000 - 180\ 000) = 58\ 000 + 0.45 \times 70\ 000$ $= 58\ 000 + 31\ 500$ $= 89\ 500$

- **a** 4 hours
- **b** 9 a.m. to 12 p.m. and then 12 p.m. to 2.30 p.m.

$$\therefore 3 + 2\frac{1}{2} = 5\frac{1}{2}$$
 hours
= 5 h 30 min

c 7:30 a.m. to 12 p.m. and then 12 p.m. to 5:15 p.m.

$$=4\frac{1}{2}+5\frac{1}{4}$$
$$=9\frac{3}{4}$$
 hours
$$=9$$
 h 45 min

Hours worked per day = 10.5

Hours worked per week = 10.5×5

= 52.5

Weekly pay = $$27.45 \times 52.5$

= \$1441.125 \approx \$1441.13

Question 2

Normal pay = $5 \times 9 \times 28.50 = \$1282.50 Time-and-a-half pay = $5 \times 1.5 \times 28.50 = \$213.75

Weekly pay = \$1282.50 + \$213.75

= \$1496.25

Question 3

 $120\ 000 \div 52.18 \approx 2299.73$

∴ B

Question 4

 $936.70 \times 52 = 48708.40$

 $\therefore C$

Question 5

a \$3115.35 × 26 = \$80 999.10

b $$3115.35 \div 2 = 1557.675

 $\approx\$1557.68$

c $\$3115.35 \div 2 \div 38 = \$40.991...$

 \approx \$40.99

Normal pay = $36 \times 27.44

= \$987.84

Time-and-a-half pay = $10 \times 1.5 \times \$27.44$

= \$411.60

Total pay = 987.84 + 411.60

= \$1399.44

Question 7

a $$948.48 \times 52 = $49 520.90$	а	\$948.48	× 52 =	\$49	320.96
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b $$49\ 320.96 \div 12 = 4110.08

Question 8

Time-and-a-half pay = $9 \times 1.5 \times 22.54

= \$304.29

Double pay = $9 \times 2 \times 22.54

Total pay = 304.29 + 405.72

= \$710.01

Day	Normal hours	Overtime hours
Mon	6	0
Tues	6	0
Wed	7	0
Thurs	8	2
Fri	8	4
Sat	0	8
Sun	0	6
Total	35	20

Normal pay = $35 \times \$41.20$

= \$1442.00

Time-and-a-half pay = $20 \times 1.5 \times \$41.20$

= \$1236.00

Weekly pay = \$1442.00 + \$1236.00

= \$2678.00

Question 10

He worked 9 h a day for 5 days, 45 h.

This will be 35 h normal, 4 h time-and-a-half and 6 h double pay.

Normal pay = $35 \times \$32.30$

= \$1130.50

Time-and-a-half pay = $4 \times 1.5 \times 32.30

= \$193.80

Double pay = $6 \times 2 \times \$32.30$

= \$387.60

Weekly pay = 1130.50 + 193.80 + 387.60

= \$1711.90

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a \$205 130 ÷ 52.18 × 2 = \$7862.399...
≈ \$7862.40
b \$205 130 ÷ 12 = \$17 094.1666...

= \$17 094.17

c $$205 \ 130 \div 52.18 = $3931.1996...$

≈ \$3931.20

Question 12

a $\$83\ 215 \div 12 = \$6934.5833...$

 \approx \$6934.58

b $\$83\ 215 \div 52.18 \times 2 = \$3189.5362...$

 \approx \$3189.54

c A law clerk would work a 5 day week which is equivalent to a 10 day fortnight.

 $3189.5362... \div 10 = 318.95362...$

 \approx \$318.95

Question 13

a Weekly pay = $$104\ 235 \div 52.18$

= \$1997.6044...

Hourly rate = $$1997.6044... \div 42$

 $\approx \$47.56$

b Calculate $83215 \div 52.18 \times 2 = 3995.2088...$

 \approx \$3995.21

 $(OR \ 2 \times \$1997.6044...)$

c $$104\ 235 \div 12 = 8686.25

Day	Normal hours	Overtime hours
Tues	7.5	0
Wed	7.5	0
Fri	4.0	4.5
Sun	7.5	1.0
Total	26.5	5.5

Normal pay = $26.5 \times 23.78

= \$630.17

Time-and-a-half pay = $5.5 \times 1.5 \times \$23.78$

= \$196.185

Weekly pay = 630.17 + 196.185

= \$826.355

 \approx \$826.36

Question 15

Normal pay = $33 \times \$26.72$

= \$881.76

Overtime $(2\frac{1}{2} \times)$ pay = 6 × 2.5 × \$26.72

= \$400.80

Total pay = 881.76 + 400.80

= \$1282.56

a He works for 9.5 hours per day.
Daily pay = $9.5 \times 37.18 = \$353.21
b Weekly pay = $5 \times 353.21 = \$1766.05
c Yearly pay = \$1766.05 × 52
= \$91 834.60
Monthly pay = \$91 834.60 ÷ 12
≈ \$7652.88

Question 17

Convert all to the same kind of rate (weekly)

Ali:	$35 \times \$28.70 = \1004.50		
Boun:	\$984		
Carlos:	$4384 \times 12 \div 52.18 = 1008.20$		
Dimitri:	51 600 ÷ 52.18 = \$988.88		
Answer: C (Carlos)			

Note: there is no need to round the answers, and other rates, e.g. per month could be chosen.

Question 18

a He works for 8.5 hours per day.

Hourly rate = $205.72 \div 8.5$

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= $24.202...
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 \approx \$24.20

b Weekly pay = $6 \times 205.72

= \$1234.32

c Yearly pay = $$1234.32 \times 52$

 $\approx \$64\ 184.64$

Day	Normal hours	Overtime hours
1	9.0	0
2	8.0	0
3	9.0	1.0
4	9.0	5.0
5	9.0	3.5
Total	44.0	9.5

Normal pay = $44 \times \$28.10$

= \$1236.40

Time-and-a-half pay = $9.5 \times 1.5 \times \$28.10$

 \approx \$400.43

Weekly pay = \$1236.40 + \$400.43

= \$1636.83

Question 20

4 hours time-and-a-half = 6 hours normal rate.

Equivalent normal hours = 32 + 6

= 38 hours.

Hourly rate = $909.20 \div 38$

= \$23.9263...

 \approx \$23.93

 $31 \times $4.30 = 133.30

:. A

Question 2

a $60 \div 12 = 12$ lots of 5 min.

 $14 \times 12 = 168$ envelopes

b $2.5 \times 168 \times \$0.135 = \56.70

Question 3

 $5 \times 18 \times \$1.05 = \94.50

∴ D

Question 4

а	Share value = $350 \times 4.30	b	2% of value = \$135
	= \$1505		Value = $135 \div 2\%$
	Commission = 2% of \$1505		$=$ \$135 \div 0.02
	= \$30.10		= \$6750

Question 5

Commission:

First \$30 000 = 4% of \$30 000

= \$1200

The rest = 2.5% of ($$350\ 000 - $30\ 000$)

= 2.5% of \$320 000

= \$8000

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Retainer: $420
```

Total earnings = 420 + 1200 + 8000

= \$9620

a 2% of \$342 400 = \$4848

Commission = 4848

b First \$500 000 = 2% of \$500 000

= \$10 000

Remaining: \$620 000 - \$500 000 = \$120 000

The rest = 1.5% of \$120 000

= \$1800

Commission = $10\ 000 + 1800$

= \$11 800

c First $$500\ 000 = 2\%$ of $$500\ 000$

= \$10 000

= \$3750

Remaining: \$1 100 000 - \$500 000 - \$250 000 = \$350 000

The rest = 0.75% of \$350 000

= \$2625

Commission = \$10 000 + \$3750 + \$2625

= \$16 375

Question 7

 $434 \times \$0.47 = \203.98

Question 8

Value of sales = $8400 \times \$8.95$

= \$75 180

Earnings = 1.8% of \$75 180

= \$1353.24

a Value of downloads = $1650000 \times 2.59

= \$4 273 500

:. Royalties = 8% of \$4 273 500

= \$341 880

- **b** Total value of album sales = $836\ 254 \times \$16.99$ = $\$14\ 207\ 955.46$
- **c** Royalties from albums = 12.5% of \$14 207 955.46

= \$1 775 994.43

Total royalties = \$1 775 994.43 + \$341 880

= \$2 117 874.43

Question 10

a $1329 \times \$0.11 = \146.19

b $$275 \div $0.11 = 2500$

Question 11

Number of cars = $3.6 \times 6\frac{1}{2}$

= 23.4 cars

But you can't vacuum 0.4 of a car. So, 23 cars.

Earnings = $23 \times \$7.24 = \166.52 .

Question 12

18% of value = \$648

Value = $648 \div 18\%$

 $=\$648\div0.18$

= \$3600

Question 13

Value of sales = $34700 \times 32.95

= \$1 143 365

Royalties = 13% of \$1 143 365

= \$148 637.45

 $5 \times 7.5 \times \$15.40 = \577.50

Question 15

Amount paid = 4.62×216

=\$997.92

Amount over 150 = 216 - 150

= 66

Extra pay = 1.20×66

=\$79.20

:. Total earnings = 997.92 + 79.20

=\$1077.12

Question 16

15% of value = \$251.70

Value = \$251.70 ÷ 15%

= \$251.70 \div 0.15

= \$1678

Question 17

 $\frac{2024}{23\ 000} \times 100\% = 8.8\%$

Question 18

15.5 cents = \$0.155

 $214.21 \div 0.155 = 1382$ newspapers

Question 19

a $114 \times \$1.65 = \188.10

b $224.40 \div 1.65 = 136$ gifts

 $500 \div 8.40 = 59.52...$

To earn over \$500 she must test more than 59 brands of food, i.e. 60 or more.

Question 21

First \$3000 = 4.8% of \$3000

= \$144

Next \$3000 = 6% of \$3000

= \$180

Remaining: \$8758 - \$3000 - \$3000 = \$2758

The rest = 7.5% of \$2758

= \$206.85

Commission = 144 + 180 + 206.85

= \$530.85

Note that there are a variety of different possible answers to each part of this question.

а	roof tiler	е	scientist in Antarctica
b	nurse	f	scaffolder
C	airline steward	g	army officer
d	steelworker	h	miner

Question 2

Per day:	$10 \times $35.70 + $25.10 = 382.10

Total: $5 \times $382.10 = 1910.50

Question 3

4 weeks' pay = $88275 \div 52.18 \times 4$

= \$6766.960...

Loading = 17.5% of \$6766.96

 $= 0.175 \times \$6766.96$

 $\approx\$1184.22$

Question 4

720.48 + 60% of 720.48 = 1152.77

Question 5

- **a** Miner earns \$28.42 + \$9.97 = \$38.39 for 7.5 hours, 5 days per week.
 - \therefore Weekly income = 5 × 7.5 × \$38.39

= \$1439.63

b Yearly income = $52 \times 1439.625

= \$74 860.50

Question 6

 $83204 \div 52.18 \times 2 + 2 \times 177.35 = 3543.81$

Monthly salary = $53045 \div 12$

= \$4420.4166 ...

Bonus = 15% of \$4420.4166...

= \$663.0625

= \$663.06

Question 8

Consider weekly amounts.

Wage = $5 \times 10 \times 27.90

= \$1395

Allowance = $5 \times \$43.40$

= \$217

 \therefore Total weekly pay = \$1395 + \$217

= \$1612

Question 9

a In this case it is easier to work out the rate per day and multiply by 6.
 Per day: \$298.80 + \$12.25 + \$8.40 + \$3.21 = \$322.66
 Weekly wage = 6 × \$322.66
 = \$1935.96
 b 4 weeks' wage = 4 × 6 × \$298.80

= \$7171.20

Loading = 17.5% of \$7171.20

= \$1254.96

Question 10

Hourly rate = \$52.56 + \$9.49

= \$62.05

 $\therefore \text{ Weekly wage} = 9.5 \times 5 \times \62.05

 $\approx \$2947.38$

Permanent staff:

Bonus = 17.5% of $(4 \times \$952.0)$

= \$666.40

: Difference = 666.40 - 472

= \$194.40

Question 12

Hourly rate = \$28.58 + \$5.10

= \$33.68

7.00 a.m. to 3.00 p.m. is 8 hours.

 $\therefore \text{ Weekly wage} = 8 \times 5 \times \33.68

= \$1347.20

Question 13

Wage = $5 \times 9 \times 29.43

= \$1324.35

Allowance = $2 \times 9 \times$ \$4.60

= \$82.80

:. Total weekly pay = \$1324.35 + \$82.80

= \$1407.15

Question 14

Commission = 3.5% of \$943 658

= \$33 028.03

Allowance = \$128.40

Retainer = \$510

 \therefore Total earnings = \$33 028.03 + \$128.40 + \$510

= \$33 666.73

4 weeks pay = $4 \times 35 \times 27.28

= \$3819.20

Loading = 17.5% of \$3819.20

= \$668.36

Question 16

- $17.5\% \times 4 \times wage = \703.12
- Wage = $9703.12 \div 4 \div 0.175$

= \$1004.457...

 \approx \$1004.46

Question 17

a 4 weeks pay = $4 \times 40 \times 24.55

= \$3928

Loading = 17.5% of \$3928

= \$687.40

b Total holiday pay = 4 weeks pay + loading

= \$3928 + \$687.40 = \$4615.40

Use the Age pension table.

a Calculate her fortnightly income.

 $1250 \div 52.18 \times 2 = 47.911... < 164$

- \therefore She gets the full payment of \$797.90.
- **b** Combined fortnightly income = $$470 \times 2$

= \$940.

Add \$124.70 to the threshold for the dependent child.

Threshold = \$292 + \$124.70 = \$416.70

So, payment is reduced by 50c for every dollar they earn above \$416.70.

This excess = \$940 - \$416.70= \$523.30

Amount reduced = $0.5 \times 523.30 = \$261.65

- :. Age pension payment = $2 \times $601.50 261.65 = \$941.35
- **c** James is not eligible for the aged pension as he is under 65 years old.

∴ **\$**0

Question 2

Because a couple live in the same house and the cost of living is shared.

Question 3

а	i	See the first row, \$528.70 fortnightly.
	ii	\$528.70 × 26 = \$13 746.20
	iii	\$13 746.20 ÷ 12 = \$1145.516

 $\approx\$1145.52$

b $$477.40 \times 26 \div 2 = 6206.20

c More. This is fair as they have no partner to share costs.

Use the youth allowance table. She is single with a child (counts as children) so she receives the maximum allowance of \$573.30.

 $\therefore C$

Question 5

- **a** Assuming there are two parents, \$477.40.
- **b** The second category, so \$571.90.
- **c** She is single, so \$738.50.
- **d** Separated due to illness, so \$571.90 per fortnight.
 - i For a year, $$571.90 \times 26 = 14869.40
 - ii For a week, $571.90 \div 2 = 285.95$

Question 6

Use the ABSTUDY table. He is 18–20 years, living at home so he gets \$288.10.

∴ B

Question 7

- **a** Susan is partnered, and assuming no children, it would be \$437.50.
- **b** Maxim is partnered with dependent child(ren), and 21 years and over, so \$477.40.
- **c** Zelda is partnered, no children, and 21 years (and over), so \$437.50.
- **d** Jasmine is single, no children, and under 16, at home, so \$239.50.

827.25 - 244.04 - 64.83 - 18.20 - 26.15 = 474.03

 $\therefore C$

Question 2

a \$945.30 - \$235.90 - \$55.17 - \$24.78 - \$17.50 = \$611.95

b $\frac{185.92}{629.60} \times 100\% = 24.955...\%$

 $\approx 25\%$

Question 3

a Gross weekly pay =
$$45674 \div 52.18$$

= \$875.3162 ...

 \approx \$875.32

b Tax = 28% of \$875.3162...

 \approx \$245.09

c \$875.32 - \$245.09 - \$30.76 - \$86.11 = \$513.36

Question 4

a $\$1035.25 - \tan - \$34.11 - \$7.90 = \692.06

Tax = \$1035.25 - \$34.11 - \$7.90 - \$692.06

= \$301.18

b $\frac{301.18}{1035.25} \times 100\% = 29.0924...\%$

 $\approx 29.09\%$

c $\frac{34.11}{1035.25} \times 100\% = 3.2948...\%$

 $\approx 3.29\%$

a Tax = 27.5% of \$1238.20

= \$340.505

≈ \$340.51

b Superannuation = 8% of \$1238.20

- $c \qquad $340.51 + $99.06 + $7.10 + $14.84 = 461.51
- **d** \$1238.20 \$461.51 = \$776.69

Question 6

a 22% of tax = \$235.52

Gross pay = $235.52 \div 22\%$

- **b** 10% of \$1070.55 = \$107.06
- **c** \$1070.55 \$235.52 \$107.06 \$4.70 = \$723.27

Question 7

a
$$$54\ 251 \div 52.18 \times 2 = $2079.3790$$

 \approx \$2079.38

b \$2079.38 - \$307.26 - \$145.60 - \$27.14 = \$1599.38

c
$$\frac{307.26}{2079.38} \times 100\% = 14.7765...\%$$

 $\approx 14.8\%$

Question 8

- **a** $39 \times \$29.38 = \1145.82
- **b** 25% of \$1145.82 = \$286.455

 \approx \$286.46

 $c \qquad \$1145.82 - \$286.46 - \$17.40 = \841.96

a Gross:
$$$108\ 275 \div 12 \approx $9022.92$$

Net: $$9022.92 - $4330 - 1080.50 - 107.54 = 3504.88
b $\frac{4330}{9022.92} \times 100\% = 47.988...\%$

pprox 48%

c
$$\frac{3504.88}{9022.92} \times 100\% = 38.844...\%$$

 $\approx 38.8\%$

Question 10

Normal pay = $35 \times \$21.48$

= \$751.80

Time-and-a-half pay = $4 \times 1.5 \times \$21.48$

= \$128.88

Double time pay = $1 \times 2 \times 21.48

= \$42.96

 \therefore Gross wage = \$751.80 + \$128.88 + \$42.96

Tax = 25% of \$923.64

- = \$230.91
- Deductions = \$230.91 + \$60.65 + \$18.15 + \$24.80

 \therefore Net wage = \$923.64 - \$334.51

= \$589.13

Other deductions, total deductions:

71.60 + 16.22 + 43.55 + 20.84 = 152.21

Pay period 14.3.11–27.3.11 is two weeks.

Gross pay = $87026 \div 52.18 \times 2$

 \approx \$3335.61

Tax = 31% of \$3335.51

= \$1034.04

Net pay = \$3335.61 - \$1034.04 - \$152.21

= \$2149.36

a Taxable income = \$31 425 - \$285

= \$31 140

Use the second row in the table.

 \therefore Tax = 0.19 × (\$31 140 - \$18 200)

= \$2458.60

b Taxable income = 131 412 - 1036 - 643

= \$129 733

Use the fourth row in the table.

 \therefore Tax = \$19 822 + 0.37 × (\$129 733 - \$87 000)

= \$35 633.21

c Taxable income is below \$18 200, so no tax is payable.

∴ \$0

Question 2

a \$91 262 - \$1810.15 = \$89 451.85

Cents are not included in taxable income.

- \therefore Taxable income = \$89 451
- **b** Use the fourth row in the table.
 - \therefore Tax = \$19 822 + 0.37 × (\$89 451 \$87 000)

```
= $20 729.18
```

```
c Levy = 2\% \times $89451
```

```
= $1789.02
```

a \$87 210 - \$650.25 - \$314.80 - \$120.50 = \$86 124.45
 Cents are not included in taxable income.
 ∴ Taxable income = \$86 124
 b Use the third row in the table.

 \therefore Tax = \$3572 + 0.325 × (\$86 124 - \$37 000)

= \$19 537.30

c Levy = 2% of \$86 124

 $= 0.02 \times 86\,124$

Question 4

```
a Income = 52 \times $1884.62 + $286.10 + $2050.96 + $892.51
```

= \$101 229.81

Deductions = \$241.60 + \$345.80 + \$175.80 + \$843.50

= \$1606.70

Taxable income = \$101 229.81 - \$1606.70

= \$99 623.11

Cents are not included in taxable income.

- \therefore Taxable income = \$99 623
- **b** Use the fourth row in the table.
 - \therefore Tax = \$19 822 + 0.37 × (\$99 623 \$87 000)

= \$24 492.51

c Levy = 2% of \$99 623

 $= 0.02 \times 99623$

a Use the first row in the table.

 $\therefore \text{ Tax} = 0.325 \times \$37\ 850$

= \$12 301.25

- **b** Use the second row in the table.
 - \therefore Tax = \$28 275 + 0.37 × (\$102 670 \$87 000)

= \$34 072.90

- **c** Use the third row in the table.
 - :. Tax = $62685 + 0.45 \times (203500 180000)$

= \$73 260

- **a** $52 \times \$314.68 = \$16\ 363.36$
- **b** $52 \times (\$1014.65 \$314.68) = \$36398.44$

Question 2

- **a** 52.18 × \$475.15 = \$24 793.33
- **b** Weekly wage = $$73489 \div 52.18$

 \approx \$1408.37

Pay = \$1408.37 - \$475.15 - \$26.80

= \$906.42

Question 3

a Taxable income = 204540 - 10534

= \$194 026

b Use the last row in the table.

 $Tax = \$54\ 232 + 0.45 \times (\$194\ 026 - \$180\ 000)$

= \$60 543.70

c Levy = 2% of \$194 026

= \$3880.52

d Money owing: 60543.70 + 3880.52 = 64424.22

PAYG paid = \$72 156, which is more than what's owing so she gets a refund.

Refund = \$72 156 - \$64 424.22

= \$7731.78

a Use the last row in the table.

 $Tax = \$54\ 232 + 0.45 \times (\$278\ 639 - \$180\ 000)$

= \$98 619.55

b Medicare Levy = 2% of \$278 639

= \$5572.78

c Money owing: \$98 619.55 + \$5572.78 = \$104 507.33

PAYG paid = \$104568, which is more than what's owing so he gets a refund.

Refund = \$104 568 - \$104 507.33

= \$375.67

Question 5

a Gross income = $52 \times \$989.60$

= \$51 459.20

Weekly deductions = $52 \times 38.25

= \$1989

Total deductions = \$1989 + \$150

= \$2139

Taxable income = \$51 459.20 - \$2139

= \$49 320.20

- \therefore Round down to \$49 320
- **b** Use the third row in the table.

 $Tax = \$3572 + 0.325 \times (\$49\ 320 - \$37\ 000)$

= \$7576

c Levy = 2% of \$49 320

= \$986.40

d Money owing = \$7576 + \$986.40

= \$8562.40

PAYG paid = $52 \times $229.02 = $11 909.04$, which is more than what's owing, so she gets a refund.

Refund = \$11 909.04 - \$8562.40 = \$3346.64

Use the second row in the table.

 $Tax = 0.19 \times (\$34\ 589 - \$18\ 200)$

= \$3113.91

Medicare Levy = 2% of \$34 589

= \$691.78

Total due = 3113.91 + 691.78

= \$3805.69

PAYG paid is \$7836, which is more than what's owing so he gets a refund.

Refund = \$7836 - \$3805.69

= \$4030.31

 $\therefore D$

Question 7

Use the last row in the table.

 $Tax = $54\ 232 + 0.45 \times ($381\ 459 - $180\ 000)$ $= $144\ 888.55$

Medicare Levy = 2% of \$381 459

= \$7629.18

Total due = 144 888.55 + 7629.18

= \$152 517.73

Tax due = \$152 517.73 - \$138 639

= \$13 878.73

∴ B

Qu

а

b

lestion 8
Use the second row in the table.
$Tax = \$28\ 275 + 0.37 \times (\$93\ 457 - \$87\ 000)$
= \$30 664.09
No Medicare Levy.
$PAYG = \$734 \times 26$
= \$19 084
Tax debt as Tax payable is more than PAYG.
\therefore Tax debt = \$30 664.09 - \$19 084
= \$11 580.09
Use the second row in the table.
$Tax = \$28\ 275 + 0.37 \times (\$98\ 534 - \$87\ 000)$
= \$32 542.58
No Medicare Levy.
$PAYG = \$5279 \times 4$
= \$21 116
\therefore Tax debt as Tax payable is more than PAYG.
\therefore Tax debt = \$32 542.58 - \$21 116

= \$11 426.58

С Use the last row in the table.

 $Tax = \$62\ 685 + 0.45 \times (\$1\ 200\ 000 - \$180\ 000)$

= \$521 685

No Medicare Levy.

PAYG = \$37 460 × 12

- \therefore Tax debt as Tax payable is more than PAYG.
- \therefore Tax debt = \$521 685 \$449 520

= \$72 165

 $110\% \times \$5.50 = \6.05

 $\therefore C$

Question 2

 $121\%\times {\textcircled{\bullet}} 500 = {\textcircled{\bullet}} 815$

Question 3

 $107\% \times 3724 \ baht = 3984.68 \ baht$

Question 4

110% of original price = 42000

1% of original price = $42\ 000 \div 110$

= \$381.81 818...

Original price = $381.8181... \times 100$

 \approx \$38 182

:. A

Question 5

110% of original price = \$25.50 1% of original price = \$25.50 ÷ 110 = \$0.231818... Original price = \$0.232818... × 100

 \approx \$23.18

Question 6

117.5% of original price = \pounds 126.90

1% of original price = $\pounds 126.90 \div 117.5$

= £1.08

Original price = $\pounds 1.08 \times 100$

 $\approx \pounds 108$

114% of original price = 53.01 rand

1% of original price = $53.01 \div 114$

= 0.465 rand

Original price = 0.465×100

 $\approx 46.50 \text{ rand}$

Question 8

 $\frac{1.24}{6.50} \times 100\% = 19.076...\%$

pprox 19%

Question 9

a €9.88 – €1.58 = €8.30

b $\frac{1.58}{8.30} \times 100\% = 19.036...\%$

 $\approx 19\%$

Question 10

а	15% of original price = 4.62	b	Final price = $30.80 + 4.62$
	1% of original price = $4.62 \div 15$		= \$35.42
	= \$0.308		
	Original price = 0.308×100		
	\approx \$30.80		
Ques	tion 11		
а	157 190 – 142 900 = 14 290 won	b	$\frac{14\ 290}{142\ 900} \times 100\% = 10\%$
Ques	tion 12		
а	€264 – €220 = €44	b	$\frac{44}{220} \times 100\% = 20\%$
Ques	tion 13		

 $\frac{224.10}{1245} \times 100\% = 18\%$

15% of original price = €31.17 1% of original price = €31.17 ÷ 15 = €2.078 Original price = €2.078×100 \approx €207.80 Selling price = €207.80 + €31.17 = €238.97

Question 15

115% of original price = \$152.72

1% of original price = $152.72 \div 115$

= \$1.328

Original price = 1.328×100

 \approx \$132.80

Question 16

10% of original price = 17.35

1% of original price = $17.35 \div 10$

= \$1.735

Original price = 1.735×100

 \approx \$173.50

Selling price = \$173.50 + \$17.35

= \$190.85

Question 17

107% of original price = 4419 baht

1% of original price = $4419 \div 107$

= 41.299 06... baht

Original price = $4.1299... \times 100$

pprox 4130 baht

\$6.93 - \$6.50 = \$0.43

 $\frac{0.43}{6.50} \times 100\% = 6.6153...\%$

pprox 6.62%

Question 19

5% of original price = \$2.40

1% of original price = $$2.40 \div 5$

= \$0.48

Original price = 0.48×100

 \approx \$48.00

Selling price = 48.00 + 2.40

= \$50.40

Question 20

 $\frac{0.57}{3} \times 100\% = 19\%$

Sample HSC problem

- **a** $52 \times $237.80 = 12365.60
- **b** $52 \times \$789.40 = \$41\ 048.80$
- **c** \$41 048.80 \$986.50 = \$40 062.80 Ignore the cents, \$40 062.
- **d** Use the third row to calculate income tax.

 $3572 + 0.325 \times (40\ 062 - 37\ 000) = 4567.15$

Medicare levy = $0.02 \times \$40\ 062$

= \$801.24

e Refund = \$12365.60 - \$4567.15 - \$801.24

Test yourself 3

Question 1

- **a** 52 × \$831.15 = \$43 219.80
- **b** $26 \times \$1948 = \$50\ 648$
- **c** $12 \times \$3786 = \$45\ 432$

Question 2

a \$138 611 ÷ 52.18 = \$2656.4009...

 \approx \$2656.40

b $\$98503 \div 52.18 \times 2 = \$3775.5078...$

 \approx \$3775.51

c $$263764 \div 12 = $21980.333...$

 \approx \$21 980.33

Question 3

- Mon 7 h normal, 2 h overtime
- Wed 4 h normal, 0 h overtime
- Fri 1 h normal, 5 h overtime
- Total 12 h normal, 7 h overtime
- $Pay = 12 \times \$25.70 + 1.5 \times 7 \times \25.70

= \$578.25

Question 4

- **a** $28 \times \$5.65 = \158.20
- **b** $$395.50 \div $5.65 = 70$ buckets

Question 5

\$4.80 per dozen

 \therefore \$4.80 \div 12 = \$0.40 per cupcake

\$38 for 100

: $38 \div 100 = 0.38$ per cupcake

 \therefore She earns 2c more per cupcake selling them by the dozen.

10% of $(2537 \times \$45.95) = \$11\ 657.515$

 \approx \$11 657.52

Question 7

Below ground = \$39.65 + \$9.84

= \$49.49 per hour

Mon 5 h above, 0 h below, meal: \$0

Wed 0 h above, 5 h below, meal: \$0

Fri 3 h above, 4 h below, meal: \$27.40

Sat (Double rate) 2 h above @ $2 \times 39.65/hr$, 4 h below @ $(2 \times 39.65 + 9.84)/hr$, meal: \$27.40

Total 8 h above, 9 h below, 2 h above at double-time, 4 h below at double-time, meal: \$54.80

 $\therefore Pay = 8 \times \$39.65 + 9 \times \$49.49 + 2 \times 2 \times \$39.65 + 8 \times (2 \times 39.65 + 9.84) + \54.80

= \$1332.57

Question 8

4 weeks pay = $86430 \div 52.18 \times 4$

= \$6625.527 ...

Leave this value in the calculator

 $17.5\% \times \$6625.527... = \$1159.467...$

 \approx \$1159.47

Question 9

Pension for an aged couple = $2 \times 601.50

= \$1203

Income threshold = $292 + 2 \times 124.70$

= 541.40

Earnings per fortnight = 2×280

= 560

Combined pension = 1203 - 0.5(560 - 541.40)

= 1193.70

- **a** $52 \times \$594.10 = \$30\ 893.20$
- **b** $2 \times $594.10 = 1188.20
- **c** $\$94\ 762 \div 52.18 \times 2 = \$3632.1195...$

 \approx \$3632.12

d $$3632.12 - $1188.20 - (2 \times $28.70) = 2386.52

Question 11

a \$118 764 - \$13 102.20 = \$105 661.80

Rounding down gives \$105 661.

b Income tax payable = $\$19\ 822 + 0.37 \times (\$105\ 661 - \$87\ 000)$

= \$26 726.57

c Medicare levy = $2\% \times $105\ 661$

= \$2113.22

d $PAYG = 1424.30×26

= \$37 031.80

Refund = \$37 031.80 - \$26 726.57 - \$2113.22

= \$8192.01

Question 12

110% of original price = \$1246

1% of original price = $1246 \div 110$

= \$11.327272...

The GST is 10% of the original price.

 $GST = \$11.327272... \times 10$

 \approx \$113.27

Question 13

- **a** $15\% \times 1262 = 189.30$ pesos
- **b** $19\% \times 235 = 44.65$ new lei
- **c** $14\% \times 26\,950 = 3773$ rand

a 115% of original price = 200 000 pesos

1% of orig. price = $200\ 000 \div 115$

= \$1739.13043...

100% of orig. price = $1739.13043... \times 100$

 $\approx 173 \ 913.04 \ \text{pesos}$

b 120% of original price = 171 400 forint

1% of orig. price = $171 400 \div 120$

= 1428.333... forint

100% of orig. price = $1428.333... \times 100$

 \approx \$142 833.33... forint