

Numeracy VM Unit 3 - Coursebook

(Note: Teachers - This is draft version 1 as at May 2024. If you find any errors, or typos please let me know.)

Section 1: Doing The Numbers

1C Solving problems 7 //applied

1D Calculations 9

- 1 a. 4.5 or $\frac{9}{4}$ b. 31
c. 62.5 d. 833
e. 3329.5 f. 10
g. \$12.50 h. \$95.13
i. 3 j. 1.0625
k. \$360 l. \$312
m. \$1.80 per litre n. 14 litres per 100 km
o. 83.33 km/h p. $x = 5$
q. 8000 cm^3 r. Smaller

2. // applied

1E Basic calculations 1 11

1. 4,120.55 2. e.g. 137 , 313.5

Multiplication 1F 13

- a. 54 b. 32 c. 120 d. 42
e. 75 f. 96 g. 143 h. 144
i. -525 j. 10 k. 240 l. \$50
m. 1080 n. 2000 o. 322 p. 600 mins

1G Division 15

- a. 2 b. 3 c. 15 d. 8
e. 15 f. 20 g. 16 h. 12
i. 15 j. 100 k. -2 l. 1.5
m. 14 n. 10 o. 50 p. 2.5
q. 5 r. 20 s. 3 t. 8

1H Fractions & decimals 16

- $\frac{1}{4}$ $\frac{11}{3}$ $\frac{5}{2}$ $\frac{9}{10}$ $\frac{3}{2}$ $\frac{2}{3}$ $\frac{4}{3}$ $\frac{7}{2}$ $\frac{27}{4}$ $\frac{3}{5}$ $\frac{5}{7}$ $\frac{5}{4}$ $\frac{7}{10}$ $\frac{19}{20}$
0.25 3.67 2.50 0.90 1.50 0.67 1.33 3.5 6.75 0.60 0.71 1.25 0.70 0.95

1I Fractions & decimals 17

- a. 1.5 b. $\frac{27}{49}$ c. 0.375 d. 0.1875
e. 0.64 f. 125,000,000 g. 71.375 h. 0.64

1J Fractions, decimals & ratios 19

- 1a. Seven million five hundred thousand dollars
b. Two hundred and fifty thousand dollars
c. One hundred and twenty-five thousand dollars
d. Ten thousand and two hundred and fifty dollars
e. Eight hundred and seventy-five dollars
f. Seven hundred and fifty million dollars

2a. Ratio: 1:10 (1 part out of 10) Percentage: 10%

b. Ratio: 1:4 (1 part out of 4) Percentage: 25%

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Numeracy VM Unit 3 - Coursebook

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- c. Ratio: 7:20 (7 parts out of 20) Percentage: 35%
 d. Ratio: 25:100 (25 parts out of 100) Percentage: 25%
 e. Ratio: 2:1 (2 parts out of 1) Percentage: 200% (because it's double)
 f. Ratio: 5:6 (5 parts out of 6) Percentage: 16.67% (because it's a reduction of one-sixth)
3. a. 2 hours at 50kmh b. 0.67hr or approx 40 minutes at 90kmh c. 2.5 hours at 4kmh
 d. 1 kg/hour e. 44.5 hot dogs/ hour f. 21.6 coffees/hour
 g. 3.53 hours at approx 5.97 km/h h. Lost \$8.33/minute or \$500/hr i. approx \$22,222/year

1K Percentages 21

1. // applied visual task

2.

	1%	2.5%	5%	7.5%	10%	20%	25%	33%	40%	50%	60%	66%	75%	80%	100%
100	1.00	2.50	5	7.50	10	20	25	33	40	50	60	66	75	80	100
50	0.50	1.25	2.50	3.75	5	10	12.50	16.50	20	25	30	33	37.50	40	50
1000	10	25	50	75	100	200	250	330	400	500	600	660	750	800	1000
500	5	12.50	25	37.50	50	100	125	165	200	250	300	330	375	400	500
250	2.50	6.25	12.50	18.75	25	50	62.50	82.50	100	125	150	165	187.50	200	250
156	1.56	3.90	7.80	11.70	15.60	31.20	39	51.48	62.40	78	93.60	102.96	117	124.80	156

1L Calculating percentages 23

- 1a. \$375 b. \$2,500 c. \$30,000
 d. \$1,050 e. \$141 f. \$1,500
 g. \$281.25 h. \$65 i. \$51,750
 j. \$0 k. \$200 l. \$100 m. \$10
- 2a. 50% increase b. 50% increase c. 42.86% increase
 d. 19.05% increase e. 9.09% decrease f. 4.78% decrease

1M Rounding 25

- 1a. 2 b. 25 c. 127 d. 57 e. -2
 2a. 1.3 b. 20.8 c. 19.8 d. 17.6 e. 11.3
 f. -0.8 g. 5.5 h. 158.2 i. 750.5 j. -27.3
 3a. 1.26 b. 20.83 c. 15.25 d. 11.12 e. 75.59
 f. -4.52 g. 9.88 h. 99.43 i. 750.26 j. 1124.50
 4a. \$7.95 b. \$8.00 c. \$11.50 d. \$250.60 e. \$0.85
 f. \$23.95 g. \$39.95 h. \$69.10 i. \$1002.35 j. \$788.50

1N Powers & roots 27

1. 9, 100, 2500, 6.25, 81, 1024, 81, 36, $4 \times 81 = 324$, $4+8 = 12$, $9-4 = 5$ $100,000-100 = 99,900$
2. Square root of 4: 2, 400: 20, 4,000: 63.246, 10: 3.162, 100: 10, 1,000: 31.623, 5: 2.236, 500: 22.361, 5,000: 70.711, 4.8: 2.191, 10,000: 100, 1,000,000: 1,000

Numeracy VM Unit 3 - Coursebook Draft version 1 - Solutions

Numeracy VM Unit 3 - Coursebook

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3. 50mm, 19.21cm, 22.36cm, 118.70 mm

Applied

Door with Area of $2,500 \text{ cm}^2 = 50 \times 50 \text{ cm}$

Door with Area of $1,600 \text{ cm}^2 = 40 \times 40 \text{ cm}$

Door with Area of $1,200 \text{ cm}^2 = 34.6 \times 34.6 \text{ cm approx}$

Right-Angled Triangle with height of 50 cm and width of 35 cm = h 50cm, width = 35cm (area 875 cm^2)

Section 2: Shape Up

2A Visual numeracy 35 //applied

2B 2D into 3D 37 //applied physical task

2C Transforming objects 39

1. Dilation (reduction), Rotation 180°

Rotation 90° , Dilation (expansion) & rotation 180°

Reflection, Dilation (reduction) & rotation -90°

2. //applied design task

2D Combining shapes 40 //applied design task

2E Compound shapes and objects 41 //applied design task

2F Measuring angles

1. 60° , 60° , 60°

75° , 60° , 45°

45° , 90° , 45°

35° , 125° , 20°

20° , 140° , 20° (or 18° , 144° , 18°)

2. angle 3 = 180° less (angle 1 + angle 2)

3. square = 4×90 degrees, rectangle = 4×90 degrees, rhombus $2 \times 135^\circ$ $2 \times 45^\circ$, Parallelogram approx. $2 \times 115^\circ$ $2 \times 65^\circ$, trapezium $2 \times 120^\circ$ $2 \times 60^\circ$, kite approx. 60° 90° 105° 105°

2G Angles at play 46 //applied measuring task

2H Driving and angles 47 //applied investigative task

2I Sketching 49 //applied design task

2J House plan 51 //applied measuring task

1. Plan looks close to scale but some of the objects inside seem a little big (single beds, sofa) or a little small (kitchen sink and burners). Also the house block is a little 'tight' for the house.

2K Modelling 53 //applied design task

2L Scaling 55 //applied measuring & design task

2M Mixing scale 56 //applied visual task

2N Technical drawings 57 //applied measuring & design task

Numeracy VM Unit 3 - Coursebook Draft version 1 - Solutions

Numeracy VM Unit 3 - Coursebook

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Section 3: Measuring Up

3A Units of measurement 63

1. ...for distance is usually metres or km.
- 2 a. 5 tonnes, b. 1ml, c. 1 tonne, d. 375ml, e. 2.5ML, f. 60 min, g. 800, h. 13,000km, i. 2.02m
3. 3,500g, b. 0.75l, c. 750m, d. 295mm, e. 1,250ml, f. 3.5km, g. 3 1/2 min, h. 150 min, i 37.78°

3B Measuring 64 //applied investigative task

3C Measuring devices 65 //applied investigative task

thermometer: temperature oC; calliper: distance mm or degrees
altimeter: altitude feet or hPa; odometer: distance km;
scale: weight grams, kg or tonnes; ammeter: current A amperes
speedometer: speed km/h; measuring tape: length or width or height (distance) mm
barometer: atmospheric pressure atmospheres or bars
wind vane: wind direction using directions!; pedometer: steps or distance metres or kms
sphygmomanometer: blood pressure (systolic and diastolic pressures)

3D Ye olde measures 66 //applied investigative task

Cubit: A length measurement, traditionally based on the length of the forearm from the elbow to the tip of the middle finger; approx 18 inches (457 mm).

Hundredweight: A unit of weight equal to 112 pounds; or 100 pounds US.

Furlong: A unit of distance equal to one-eighth of a mile or 220 yards (201.17 metres).

League: A unit of distance historically varying but often considered to be about three miles (4.83 km).

Peck: A unit of dry volume or capacity, typically equal to 2 gallons (9.09 litres) or 8 dry quarts.

Ell: A measure of length, particularly used for textiles, historically varying in length but often around 45 inches (1.143 metres).

Chain: A unit of length equal to 66 feet (20.12 metres) or 22 yards, used in surveying and land measurement.

3E Perimeter and area 69

- i. Circular Rug, Circumference: 1.634 m, Area: 0.212 m²
- ii. Roof of a Rectangular Garage, Perimeter: 14.6 m, Area: 12.42 m²
- iii. Triangular Sail, Perimeter: Not enough information, Area: 0.525 m²
- iv. Room // applied
- v. Backyard // applied
- vi. 4 Hectare Property, Perimeter: Need shape and dimensions, Area: 40,000 m²

3F Volume 70

- a. 8,000cm³, b. 125,680cm³, c. 65,450cm³
- d. TBC

3G Getting it right 71 //applied measurement task

3H Volume - Fluids 73

1 1. How much an object or 'container' can hold. 2. litre

3. when using chemicals, 4. in medicine

2-4. //applied investigative task

Applied

a. 20ml milk, b. 6x20x10=1,200ml cream

c. 2x8x10 = 160 icing sugar ; 100x10=1kg chocolate

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Numeracy VM Unit 3 - Coursebook

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3L Volume - Fluid units 74

- Milliliters in 5 tablespoons, 100 ml
 - Milliliters in 6 teaspoons, 30 ml
 - Milliliters in 9 3-litre bottles, 27,000 ml
 - Litres in 3.5 megalitres, 3,500,000 litres
 - "Bad" Fluid consumption in a week: Subjective (e.g., sugary drinks, alcohol)
 - "Good" Fluid consumption in a week: Subjective (e.g., water, milk)
 - Litres of Water for an average backyard swimming Pool: 20,000 to 40,000 litres
 - Litres of Water for an Olympic-sized swimming pool: About 2,500,000 litres
 - Cost of bottled water per litre: Typically \$1 to \$3
 - Cost of tap water from home per litre: Typically 2c to 5c
 - Capacity of a fuel tank for a motorbike: 10 to 20 litres
 - Capacity of a fuel tank for an SUV: 60 to 100+ litres
 - Cooking and baking
 - Medical contexts to measure the volume of fluids for syringes, medications, or other healthcare-related purposes
- 2-4. //applied investigative task

3J Goldilocks 76 //applied investigative task

3K Weight 77 //applied investigative task

3L Temperature in action 78-79 //applied investigative tasks

- Hottest temperature ever in Australia: The highest recorded temperature in Australia was 50.7°C (123.3°F) in Oodnadatta, South Australia, on January 2, 1960.
- Coldest temperature ever in Australia: The lowest recorded temperature in Australia was -23.0°C (-9.4°F) at Charlotte Pass, New South Wales, on June 29, 1994.
- A caffè latte: A caffè latte is typically served at around 60-70°C (140-160°F), but this can vary depending on personal preference and the serving establishment.
- Car radiator fluid after a long drive: The temperature of car radiator fluid after a long drive can vary significantly depending on the vehicle's operating conditions, but it can reach temperatures exceeding 90°C (194°F).
- A bath suitable for a baby: A bath suitable for a baby is typically around 37°C (98.6°F), which is close to normal body temperature.
- A shop fridge for milk: The temperature of a shop fridge for milk is usually set between 1-4°C (33.8-39.2°F) to keep the milk fresh and prevent bacterial growth.
- Healthy human temperature: The average healthy human body temperature is around 36.5-37.5°C (97.7-99.5°F), but it can vary slightly depending on individual factors.
- A human with a fever: A fever is generally considered to be a body temperature above 38°C (100.4°F). The specific temperature at which a fever is diagnosed can vary depending on medical guidelines and individual circumstances.

3M Measurements 80

a. 37m b. 85m² c. 0.9m² d. 6m², 7.2m³ e. 0.442m²

2. Yard = 85m²

Adding the areas of the compost, cubby house, and fountain: 0.9+6+0.442=7.342 square metres

85 less 7.342 =

77.66 square meters

3. //applied investigative task

Numeracy VM Unit 3 - Coursebook Draft version 1 - Solutions

Numeracy VM Unit 3 - Coursebook

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3N Stop the goats 81

2. 1 acre = 4046.9m² so 2.5 acres = 10,117m² The Sq root of 10,117m² = 100.6 'lineal' metres.

So make the square property border 101 metres to be sure.

P = 100m*4 = 400m of fencing.

3. Area = 10,117m² or 10,120m² approx.

4. 10,120m² x 40% = 4,048m² therefore 6,072m² is left for the veggie patch.

5. Volume = 3.142 x r² x h = 3.142 x (0.45)² x 1.6 = 3.142 x 0.2025m² x 1.6m = 1.018m³

There are 1000 litres in a cubic metre so just over 1,000 litres in the tank (he shouldn't fill it right to the top anyway).

6-7. //applied investigation

3O Combining shapes 82

Part A: a. //applied design task

b-c. Perimeter = 18m of straight edges and 6.284m for the curved section = 24.29m (allow 25m)

c-f. //applied investigation task

Part B: a. No.

b-c. triangle = $\frac{1}{2} \times 4.6m \times 4 = 9.2m^2$

square = 4 x 4 = 16m²

semi-circle = 3.14m²

Total area = 27.34m²

d. She would need much more than that to allow cutting and 'sewing/blending'.

Approx 42.5m² for the rectangle (16m²) and to cut the triangle shape (18.4m²) and (8m²) for the semi-circle and then some extra.

e-f. //applied investigative task

Section 4: Got The Time?

4A It's about time 88 //applied activity

4B Time will tell 89

1. 3:30pm, 5:15pm, p:45pm, 11:30 pm

6am, 4.24am, 9.45am, 7:30pm

8pm, midnight, midday, midnight

2-4. //applied

4C You and time 91 //applied

4D Calculating time 93

1 hour 50 minutes in minutes: 110 minutes

4 hours in minutes: 240 minutes

7 hours 15 minutes in minutes: 435 minutes

210 minutes in hours: 3.5 hours

4.5 hours in minutes: 270 minutes

Numeracy VM Unit 3 - Coursebook Draft version 1 - Solutions

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20 hours in minutes: 1200 minutes

72 hours in days: 3 days

15 minutes in hours: 0.25 hours

7 minutes in seconds: 420 seconds

2.5 minutes in seconds: 150 seconds 10 minutes

45 seconds in seconds: 645 seconds

1,019 seconds in minutes: approximately 16.98 minutes

2-3. //applied investigative tasks

4E How long? 94

3hrs, 3hrs 25 min, 23 hrs 25 min, 10hrs, 47 min, 23 hr 30 min

8 hrs, 10 hr 45 min, 11 hr 15 min, 23 hrs, 6 hr 50 min, 23 hr 45 min

4F Time zones 97

1. Greenwich Mean Time (GMT) is the time standard that was used as a worldwide reference for setting clocks and time zones. It is based on the time at the Royal Observatory in Greenwich, London, which is at the zero-degree line of longitude. GMT serves as a starting point for calculating time differences across the globe.

2. (Ignoring daylight savings times)

Sydney & Melbourne: GMT +10

London: GMT

New York: GMT -5

Tokyo: GMT +9

Beijing: GMT +8

Los Angeles: GMT -8

Berlin: GMT +1

Mumbai: GMT +5:30

3. (Ignoring daylight savings times)

London (from Melbourne 11:00): 01:00

Melbourne (from London 15:30): 01:30 (next day)

Melbourne (from New York 19:30): 10:30 (next day)

Tokyo (from Melbourne 07:30): 06:30

Perth (from Beijing 23:15): 23:15

Sydney (from Los Angeles 17:15): 11:15 (next day)

Adelaide (from Berlin 05:30): 14:00

Brisbane (from Mumbai 12:00): 16:30

4. Possibly 24 hours including stopover. Local time = 08:30 next day. Call time is 17:30 AEST.

5. About 12-14 hours, so somewhere around 11:15 PST (for 14 hour flight).

6. About 15 hours. 06:30 AEST. Then time to get processed and time to get home.

4G Getting around 99 //applied investigative task

4H My timetable 100 //applied investigative task

4I Timetables in action 101 //applied investigative task

4J Rosters in action 103

Numeracy VM Unit 3 - Coursebook Draft version 1 - Solutions

Numeracy VM Unit 3 - Coursebook

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	MON	TUE	WED	THU	FRI	SAT	SUN
7:00							
8:00							
9:00							
10:00							
11:00							
12:00							
13:00							
14:00							
15:00							
16:00							
17:00							
18:00							
19:00							
20:00							
21:00							
22:00							

4K Timesheets in action 105

1. //applied discussion (it's about taking personal responsibility).

2.

	Date	Start	Finish	Break	Hours Worked	Rate	Total
Monday	19-Aug	8:15	16:36	13:00 to 13:45	7h 36m	\$24.73	\$187.95
Tuesday	20-Aug	8:15	16:36	13:00 to 13:45	7h 36m	\$24.73	\$187.95
Wednesday	21-Aug	8:15	16:36	13:00 to 13:45	7h 36m	\$24.73	\$187.95
Thursday	22-Aug	8:15	16:36	13:00 to 13:45	7h 36m	\$24.73	\$187.95
Friday	23-Aug	8:15	16:36	13:00 to 13:45	7h 36m	\$24.73	\$187.95
Saturday							
Sunday							
Totals					38	w/rounding	\$939.77

3. Organisation name, employer name, employee no., date period, job classification, age (for juniors), etc..

4. //applied investigative task

4L In my future 106 //applied investigative task

4M My transport costs 107 //applied investigative task

Numeracy VM Unit 3 - Coursebook

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Section 5: Relationships

5A: Relationships 113 //applied task

5B Applied Relationships 114-115 //applied task

5C Proportions 117

1. a. 0.60 60% b. 0.125 12.5% c. 0.40 40% d. 0.99 99%
2. a. 1:4 b. 3:4 c. 2:3 d. 1:100
3. a. one to two b. one to eight c. eighty-five to one hundred or eight point five to ten d. six point two five to one hundred
4. Approx: Yellow: 25%, Red: 33%, Blue: 11%, Green: 20%, Purple: 11%

Applied

Individual needs vary based on factors like age, gender, activity level, and specific health conditions.
But possibly: Carbs 50%, protein 30%, fat 20%

5D Ratios 119

1. a. 2:1 b. 4:3 c. 5/3 d. 2.5:1 e. 10:1
2.
 - a. Fraction: $\frac{1}{2}$, Decimal: 0.5, Percentage: 50%
 - b. Fraction: $\frac{1}{3}$, Decimal: 0.333, Percentage: 33.3%
 - c. Fraction: $\frac{1}{4}$, Decimal: 0.25, Percentage: 25%
 - d. Fraction: $\frac{2}{1}$, Decimal: 2, Percentage: 200%
 - e. Fraction: $\frac{7}{8}$, Decimal: 0.875, Percentage: 87.5%
 - f. Fraction: $\frac{3}{7}$, Decimal: 0.4286, Percentage: 42.86%
 - g. Fraction: $\frac{4}{3}$, Decimal: 1.333, Percentage: 133.3%
 - h. Fraction: $\frac{16}{9}$, Decimal: 1.778, Percentage: 177.8%
 - i. Fraction: $\frac{4}{1}$, Decimal: 4, Percentage: 400%
 - j. Fraction: $\frac{1}{100}$, Decimal: 0.01, Percentage: 1%

3. // applied investigation and discussion

5E Rates 121

1. a. kilometres & hours: speed b. litres & kilometres: fuel consumption c. litres & minutes: water use in shower d. dollars & hours: wage rate
2. a. Fast jogger b. car at speed limit c. jet plane d. echidna
3. a. = 5 l/100km
5 l/100km means the vehicle consumes 5 litres of fuel for every 100 km travelled.
10 l/100km means the vehicle consumes 10 litres for the same distance.
b. = 7.3 l/100km
7.3 l/100km means the vehicle consumes 7.3 litres of fuel for every 100 km travelled.
7.3 l/100m means 7.3 litres of fuel for every 100 meters travelled. This is equivalent to 730 litres per 100 km, indicating very high fuel consumption
c. Generally, a motorbike tends to be more fuel-efficient than a car.
4. a. 60 km/hour b. 45 km/hour c. 720 km/hour
d. \$50/hour e. \$240/day f. \$6,500/month or \$1,500/week
g. 10 litres/100 km h. 9 litres/100 km i. 6.4 litres/100 km

5F Working the numbers 123

- a. 1,125 grams of salmon, 3 eggs, 75 ml of milk, 150 grams of Parmesan, 225 grams of rice, 6 spring onions, 3 garlic cloves
- b. 300 km/week, 20 litres/100km, \$138 at \$2.30 per litre

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c. 7.5 km city, then 90 km for country (at 90 kmh), total = 97.5km, time = 1 hour 15 minutes

5G Common formulae 125

➤ Simple Interest Rate

$I = P \times r \times t$ where I is the interest, P is the principal, r is the rate, and t is the time in years.

➤ Compound Interest Rate

$A = P \times (1 + r/n)^{n \times t}$ where A is the final amount, P is the principal, r is the annual interest rate, n is the number of compounding periods per year, and t is the number of years.

➤ GST to Add to a Price

Original Price x 10%

➤ GST Already in a Price

Total Price / 11

➤ Male Shoe Size Based on Foot Length

Shoe Size (US) = (3 × Foot Length in inches) – 24.

➤ Female Shoe Size Based on Foot Length

Shoe Size (US) = (3 × Foot Length in inches) – 22.5.

➤ Fuel Economy of a Vehicle - City Driving

Fuel Economy = $\frac{\text{Fuel Consumed}}$

Distance Driven × 100.

➤ Fuel Economy of a Vehicle - Country Driving

This is generally better than city driving due to consistent speeds and fewer stops. Use the same formula as above to calculate it

➤ BMI - Normal Person

BMI = $\frac{\text{Weight in kg}}$

Height in meters²

➤ BMI - Muscular Athlete

Same as the formula for BMI, but interpretation can vary.

➤ Cat Years in 'Equivalent' Human Years

No exact formula, but the general estimation is:

- First year = 15 human years. Second year = 24 human years (15 + 9).
- Subsequent years = 4 human years each.

➤ Dog Years in 'Equivalent' Human Years

General estimation:

- First year = 15 human years. Second year = 24 human years.
- Each additional year ≈ 5 human years.

➤ Labour Participation Rate

Labour Participation Rate = $\frac{\text{Labour Force}}$

Working Age Population x 100

➤ Unemployment Rate

Unemployment Rate = $\frac{\text{Total Unemployed}}$

Labour Force x 100

5H Relationship formulae 127

1. a. Mix (10:1) = 10W plus 1B // or 1W plus 0.1B

b. //applied investigation

c. For 1 cup of rice: Mix = 1R + 2W // or 1:2 rice to water

For 2 cups of rice: Mix = (1R + 2W) + (1R = 1.5W) // or First cup of rice: 1:2 rice to water, then 1:1.5 rice to water thereafter. (Note: the true formula beyond one cup is complex involving 'n' and is more easily understood, and better expressed in words.

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d. Shelf = $12S + 3B + 0.8mT$ // So total required = $6 \times (12S + 3B + 0.8mT)$ or 72 screws, 18 brackets and 6 lengths of timber at 0.8m (4.8m).

2. //applied investigation

3. a. 60 km/h b. 45 km/h c. 41 spring rolls/hour (0.68/min) d. 1000 push-ups/week (approx 143/day)

5I Applying formulae 129

i. 194 ii. 4 iii. -84 iv. 94

2. Shopping: $B = 0.6G + 0.125CT + 0.275FG$

Barber: Cut = $15 \times \$1.50 = \22.50

3&4. //applied investigation

Mowing: Standard = $\$20 + \$25/\text{hr}$ Pensioner = $\$20 + \$15/\text{hr}$

6. //applied investigation (you'd need about 2.56 billion hot dogs to stretch from Earth to the Moon.)

5J Developing formulae 131

1.

i. Transposition: $X = 100 - 15$ Answer: $X=85$.

ii. Transposition: $X = 100 + 15$ Answer: $X=115$.

iii. Transposition: $X = 150 / 15$ Answer: $X=10$

iv. Transposition: $X = 15 \times 15$ Answer: $X=225$

v. Transposition: $50 = 3Y + 20$, then $30 = 3Y$, then $Y = 30/3$ Answer: $Y=10$.

vi. Transposition: $2X = 550 - 50$, then $2X = 500$, then $V = 500/2$ Answer: $X=250$.

vii. Transposition: $900 = 3Y - 150$, then $1,050 = 3Y$, then $1,050/3 = Y$ Answer: $Y=350$.

viii. Transposition: $X - 20,000 = 40,000 + 10,000$, then $X - 20,000 = 50,000$, then $X = 70,000$ Answer: $X=70,000$.

2. \$10: \$400 per week // \$20k per year // 21.3% of AWE //A very low wage, except for a young junior e.g. aged 15 or 16

\$40: \$1,600 per week // \$80k per year // 85.4% of AWE //A decent wage, especially if a younger worker, but still below the median AWE

5K See for yourself 133 //applied analytical task

5L Visualisations 135 //applied investigative task