

WA6MNAFM1

Financial mathematics

Core + Challenge

Savings Goals and Interest — Marking Key

I can make a plan to reach a savings goal, predict expenses and explain how a bank pays interest.

For tutors and parents. Award method marks for correct working even if the final answer is wrong.

Marks summary

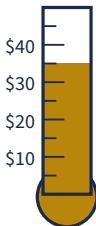
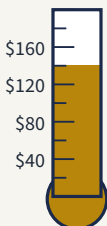
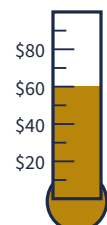
A Warm up: 16 B Practise: 21 C Think it through: 10 D Challenge: 9 **Total: 56**

Gold shading in this key shows what the child should have shaded or drawn. Accept any correct arrangement unless the question fixes it.

A

Warm up *answers*

/ 16 marks

Q	Answer	Model answer / notes	Marks
1	\$15	Goal \$50  $\\$50 - \\$35 = \\$15.$	1
2	\$60	Goal \$200  $\\$200 - \\$140 = \\$60.$	1
3	\$40	Goal \$100  $\\$100 - \\$60 = \\$40.$	1

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Q	Answer	Model answer / notes	Marks
4	\$30	Goal \$80  $\\$80 - \\$50 = \\$30$.	1
5	8 weeks	 $\\$40 \div \\$5 = 8$ (or count on in \$5 steps).	1
6	9 weeks	 $\\$36 \div \\$4 = 9$ (or count on in \$4 steps).	1
7	5 weeks	 $\\$60 \div \\$12 = 5$ (or count on in \$12 steps).	1
8	6 weeks	 $\\$45 \div \\$7.50 = 6$ (or count on in \$7.50 steps).	1
9	\$56	$8 \times 7 = 56$.	1
10	\$75	10 weeks = 5 fortnights. $5 \times 15 = 75$.	1
11	\$52	$90 - 38 = 52$.	1
12	\$35	$3.50 \times 10 = 35$.	1
13	\$6	3 lots of \$100, so $3 \times \$2 = \$6$.	1
14	\$5	10% of 50 = $50 \div 10 = 5$.	1
15	\$8	1% of 800 = $800 \div 100 = 8$.	1
16	\$510	1% of 500 = 5, so 2% = \$10. $500 + 10 = \$510$.	1

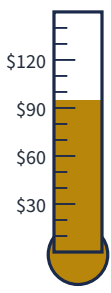
B

Practise *answers and working*

/ 21 marks

Q	Answer	Working / sample response	Marks																		
1	Week 7	<table><tr><th>Week</th><th>0</th><th>1</th><th>2</th><th>3</th><th>4</th><th>5</th><th>6</th><th>7</th></tr><tr><td>Total</td><td>\$18</td><td>\$30</td><td>\$42</td><td>\$54</td><td>\$66</td><td>\$78</td><td>\$90</td><td>\$102</td></tr></table> Add \$12 each week: \$18, \$30, \$42, \$54, \$66, \$78, \$90, \$102. After week 6 she has \$90 (not enough). After week 7 she has \$102, so week 7. <i>2 marks: table correct (1 mark for four or more correct). 1 mark: week 7.</i>	Week	0	1	2	3	4	5	6	7	Total	\$18	\$30	\$42	\$54	\$66	\$78	\$90	\$102	3
Week	0	1	2	3	4	5	6	7													
Total	\$18	\$30	\$42	\$54	\$66	\$78	\$90	\$102													

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Q	Answer	Working / sample response	Marks												
2	a) \$55 b) 5 weeks	Goal \$150  a) $\\$150 - \\$95 = \\$55$. b) $\\$55 \div \\$11 = 5$ weeks (11, 22, 33, 44, 55). <i>1 mark: \$95 shaded.</i> <i>1 mark: \$55.</i> <i>1 mark: 5 weeks.</i>	3												
3	\$15.10	<table border="1"><thead><tr><th></th><th>Amount</th></tr></thead><tbody><tr><td>Total income</td><td>\$35</td></tr><tr><td>Total expenses</td><td>\$19.90</td></tr><tr><td>Savings</td><td>\$15.10</td></tr></tbody></table> Income: $\\$20 + \\$15 = \\$35$. Expenses: $\\$8.50 + \\$6.40 + \\$5 = \\$19.90$. Savings: $\\$35 - \\$19.90 = \\$15.10$. <i>1 mark: total income \$35.</i> <i>1 mark: total expenses \$19.90.</i> <i>1 mark: savings \$15.10.</i>		Amount	Total income	\$35	Total expenses	\$19.90	Savings	\$15.10	3				
	Amount														
Total income	\$35														
Total expenses	\$19.90														
Savings	\$15.10														
4	a) \$120 b) 12 weeks	a) Snacks: $3 \times \\$5 = \\$15$. Total: $\\$70 + \\$35 + \\$15 = \\$120$. b) $\\$120 \div \\$10 = 12$ weeks. <i>1 mark: \$120.</i> <i>1 mark: 12 weeks.</i>	2												
5	Noah \$400, Aisha \$408, difference \$8	Noah's money box pays no interest: still \$400. Aisha: 1% of \$400 = \$4, so 2% = \$8. $\\$400 + \\$8 = \\$408$. Aisha has \$8 more. <i>1 mark: Noah \$400.</i> <i>1 mark: Aisha \$408 (difference \$8).</i>	2												
6	a) \$165 b) \$35	a) $20 + 35 + 15 + 40 + 25 + 30 = \\$165$. b) $\\$200 - \\$165 = \\$35$. <i>1 mark: \$165.</i> <i>1 mark: \$35.</i>	2												
7	See table	<table border="1"><thead><tr><th>Saved</th><th>\$100</th><th>\$200</th><th>\$500</th><th>\$1000</th><th>\$50</th></tr></thead><tbody><tr><td>Interest</td><td>\$3</td><td>\$6</td><td>\$15</td><td>\$30</td><td>\$1.50</td></tr></tbody></table> $\\$100: \\$3, \\$200: \\$6, \\$500: \\$15, \\$1000: \\$30, \\$50: \\$1.50$. <i>2 marks: all four correct. 1 mark: two or three correct.</i>	Saved	\$100	\$200	\$500	\$1000	\$50	Interest	\$3	\$6	\$15	\$30	\$1.50	2
Saved	\$100	\$200	\$500	\$1000	\$50										
Interest	\$3	\$6	\$15	\$30	\$1.50										

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Q	Answer	Working / sample response	Marks
8	Option A, \$28 more	A: $52 \text{ weeks} \times \\$4 = \\$208$. B: $12 \text{ months} \times \\$15 = \\$180$. $\\$208 - \\$180 = \\$28$. <i>1 mark: \$208 and \$180.</i> <i>1 mark: Option A, \$28 more.</i>	2
9	a) \$20 b) \$17	a) $\\$360 \div 18 = \\$20$ a week. b) $\\$360 - \\$54 = \\$306$. $\\$306 \div 18 = \\$17$ a week. <i>1 mark: \$20.</i> <i>1 mark: \$17.</i>	2

C

Think it through *sample answers and criteria*

/ 10 marks

Q	Answer	Working / sample response	Marks									
		<table><tr><td></td><td>Regular (often)</td><td>One-off</td></tr><tr><td>Need</td><td>School lunch, bus fare to school</td><td>New school shoes</td></tr><tr><td>Want</td><td>Weekly snack treats</td><td>Cinema ticket, concert ticket</td></tr></table>		Regular (often)	One-off	Need	School lunch, bus fare to school	New school shoes	Want	Weekly snack treats	Cinema ticket, concert ticket	
	Regular (often)	One-off										
Need	School lunch, bus fare to school	New school shoes										
Want	Weekly snack treats	Cinema ticket, concert ticket										
1	Needs first	Needs you pay often: school lunch, bus fare. Needs you pay once: new school shoes. Wants you pay often: weekly snack treats. Wants you pay once: cinema ticket, concert ticket. Plan for needs first, because you must pay for them. Regular needs come every week. <i>1 mark: sorted sensibly (accept reasoned differences, e.g. shoes as a regular cost).</i> <i>1 mark: needs first, with a reason.</i>	2									
2	No	A bank pays interest, so the money grows. A money box does not. Example: \$200 in a bank paying 2% a year becomes \$204 after one year. In a money box it stays \$200. <i>1 mark: No, because a bank pays interest.</i> <i>1 mark: a correct example.</i>	2									
3	True	A year has 52 weeks. $52 \times \\$5 = \\$260$, which is more than \$250. <i>1 mark: True.</i> <i>1 mark: $52 \times \\$5 = \\$260$.</i>	2									
4	No: Sam \$2, Lily \$10	Sam: 1% of \$100 = \$1, so 2% = \$2. Lily: 1% of \$1000 = \$10. Lily earns \$8 more, because she has much more money saved. <i>1 mark: No, with \$2 and \$10.</i> <i>1 mark: explains the interest depends on the amount saved as well as the rate.</i>	2									

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Q	Answer	Working / sample response	Marks
5	D	A: $8 \times \\$7.50 = \\$60$. B: 4 fortnights $\times \\$15 = \\$60$. C: $\\$20 + 8 \times \\$5 = \\$60$. D: $8 \times \\$6 + \\$10 = \\$58$, the only plan that does not reach \$60. <i>1 mark: D.</i> <i>1 mark: shows A, B and C all give \$60 and D gives \$58.</i>	2

D

Challenge *solutions and criteria*

/ 9 marks

Q	Answer	Working / sample response	Marks
1	7 mixes; six \$10 notes (6 weeks)	\$10 notes and \$5 notes: 0 and 12; 1 and 10; 2 and 8; 3 and 6; 4 and 4; 5 and 2; 6 and 0. Each extra \$10 note replaces two \$5 notes. Six \$10 notes take the fewest weeks: 6. <i>2 marks: all seven mixes (1 mark for four to six).</i> <i>1 mark: six \$10 notes, 6 weeks.</i>	3
2	a) Bank A b) \$750	a) Bank A: \$15. Bank B: 1% of \$600 = \$6, so 2% = \$12. Bank A pays \$3 more. b) 2% must equal \$15, so 1% = \$7.50 and 100% = \$750. Check: 2% of \$750 = \$15. <i>1 mark: Bank B pays \$12.</i> <i>1 mark: Bank A pays more.</i> <i>1 mark: \$750.</i>	3
3	a) No, \$125 b) \$5.50 more	a) She saves $\\$12 - \\$4 = \\$8$ a week. $10 \times \\$8 = \\$80$. $\\$45 + \\$80 = \\$125$, which is less than \$180. b) She is $\\$180 - \\$125 = \\$55$ short. $\\$55 \div 10 = \\$5.50$ more each week (so \$13.50 a week). <i>1 mark: \$8 a week saved.</i> <i>1 mark: \$125, so No.</i> <i>1 mark: \$5.50 more a week.</i>	3