EDUQAS GCSE MATHEMATICS

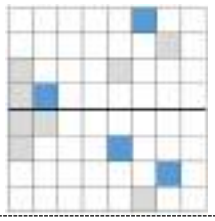
SUMMER 2025 MARK SCHEME

GCSE (9-1) Mathematics Component 1: Foundation Tier	Mark	Comment
1.(a) 18	B1	
1.(b) 500 or 5 hundred(s)	B1	Accept hundred(s). Do not accept 100 or 23 500.
1.(c) 1, 2, 4, 5, 10 and 20	B2	Written in any order. Ignore repeats. Allow 1×20, 2×10 and 4×5. B1 for one of the following: • 4 correct factors with none incorrect • 5 correct with no more than one incorrect • 6 correct with one incorrect.
1.(d) 700 or 680 or 721	B1	
1.(e) No indicated, with numbers listed: 745, 746, 747, 748, 749, (750) 751, 752, 753, 754	B1	Allow No indicated and one of the following: • 'there are nine'. • 'there are ten' if 750 appropriately seen. • 'all the numbers between 745 and 754 round to 750'. Do not accept an unsupported 'there are more than eight'.
	(6)	
2. $\frac{241 + 195}{2} - 195$ OR $241 - \frac{241 + 195}{2}$ OR $\frac{241 - 195}{2}$ 23 (counters)	M2 A1	May be seen in stages. M1 for either: • $\frac{241 + 195}{2}$ (= 218) • 241 – 195 (= 46) CAO
2. Alternative method *A series of trials which would lead to the correct answer (218 for each)* *23 (counters)*	*M2* *A1*	*M1 for a pair of improving trials.* *CAO*
	(3)	

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3.(a)(i) 0	B1	Allow in words e.g. 'zero' or 'none'. Accept 'no blue counters' or '0 out of 20'.
3.(a)(ii) 19	B1	Allow in words e.g. 'nineteen'. Accept '19 out of 20'. B0 for 19/20.
3.(b) William indicated, with a suitable reason: • '20 is half/50% of 40 (so there's an even chance of getting a purple counter)' 'Half/50% of the counters are purple (so there is an even chance of getting a purple counter)'	E1	Accept equivalent suitable reasons. Allow 20/40 = ½ oe E0 for either: • 12 + 8 = 20 • 20 out of 40 Do not allow • 'there is an even chance as most of the counters are purple' • 'there are 20 purple counters and 20 counters which are black or green'.
3.(c) ¼ = 5/20 OR 7/20 = 35% AND 1/4 = 25% AND 3/20 = 15% OR 7/20 = 0.35 AND 1/4 = 0.25 AND 3/20 = 0.15 7/20 + 5/20 + 3/20 = 15/20 oe (≠ 1) OR 35% + 25% + 15% = 75% (≠ 100%) OR 0.35 + 0.25 + 0.15 = 0.75 (≠ 1) (so, there must be pens of other colours in the drawer)	B1 E1	Accept conversion to decimals or percentages providing <u>all</u> fractions are converted correctly. If using a common denominator other than 20, all fractions must be converted correctly. Accept '7 + 5 + 3 = 15' for B1. Dependent upon B1 being awarded. Accept 'probabilities do not add to 1' with supporting working e.g. '7/20 + 5/20 + 3/20. Does not add up to 1'. Allow B1 E1 for example '7 + 5 + 3 = 15 so there are 5 pens of other colours' '7 + 5 + 3 does not add up to 20'.
<u>Alternative method</u> *Three <u>correctly evaluated</u> calculations for a common amount (e.g. 40)* *(7/20 x 40) = 14* *(1/4 x 40) = 10* *(3/20 x 40) = 6* *Showing the sum of the three values does not equal the common amount* *e.g. 14 + 10 + 6 = 30 (≠ 40)* *(so, there must be pens of other colours in the drawer)*	*B1* *E1*	
	(5)	

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4.(a) 70(%)	B1	Do not accept $\frac{70}{100}$
4.(b) 0·09	B1	
4.(c) An answer of $\frac{3}{5}$ with correct supporting workings e.g. $\frac{3}{5} = \frac{12}{20}$ AND $\frac{3}{4} = \frac{15}{20}$ OR all three fractions converted to a common form: e.g. $\frac{3}{5} = \frac{36}{60}$, $\frac{13}{20} = \frac{39}{60}$ AND $\frac{3}{4} = \frac{45}{60}$ OR $\frac{3}{5}$ = 60% , $\frac{13}{20}$ = 65% AND $\frac{3}{4}$ = 75% OR $\frac{3}{5}$ = 0·6 , $\frac{13}{20}$ = 0·65 AND $\frac{3}{4}$ = 0·75 OR all three fractions of a common value calculated e.g. $\frac{3}{5}$ × 60 = 36 , $\frac{13}{20}$ × 60 = 39 AND $\frac{3}{4}$ × 60 = 45	B2	No marks unless working seen. Accept equivalent value to 3/5 on the answer space if unambiguous. B1 for one of the following: • $\frac{3}{5} = \frac{12}{20}$ • $\frac{3}{4} = \frac{15}{20}$ • two of fractions correctly converted to a common denominator (other than 20) • two of $\frac{3}{5}$ = 60% , $\frac{13}{20}$ = 65%, $\frac{3}{4}$ = 75% • two of $\frac{3}{5}$ = 0·6 , $\frac{13}{20}$ = 0·65, $\frac{3}{4}$ = 0·75 • two fractions of a common value correctly calculated
	(4)	
5.(a) 57 (°)	B1	± 2°
5.(b) 	B2	B1 for one of the following: • all 4 correct squares and no more than 2 extra squares • 3 correct squares and no more than 1 incorrect squares • 2 correct squares and no incorrect squares
	(3)	
6. $\frac{(100 - 30}{100} \times 800) \div 20$ oe = 28	M3 A1	May be seen in stages. M2 for $\frac{100 - 30}{100} \times 800$ (= 560) $800 - \frac{30}{100} \times 800$ (= 560) M1 for $\frac{30}{100} \times 800$ oe (= 240) CAO
Alternative method $\frac{800}{20} \times \frac{(100 - 30)}{100}$ oe *= 28*	*M3* *A1*	*M2 for* $\frac{800}{20}$ *AND* $\frac{800}{20} \times \frac{30}{100}$ *(= 40 AND 12)* *M1 for* $\frac{800}{20} \times \frac{30}{100}$ *(= 12)* *CAO*
	(4)	

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7.(a)(i) 347	B1	
7.(a)(ii) 9	B1	Accept embedded answers unless contradicted.
7.(b) (x =) 8	B2	May be seen on number machine. Accept embedded answers unless contradicted, e.g. • 60/5 + 8 = 20. • 12 + 8 = 20 B1 for one of the following: • $20 - x = 12$ • $12 + x = 20$ • $20 - \frac{60}{5}$ • 20 – 'their $\frac{60}{5}$', correctly evaluated
	(4)	
8.(a) $3a + 4b$	B2	Mark final answer. Must be an expression for B2. B1 for either: • sight of (+)$3a$ • sight of $4b$ (but not $-4b$) B0 for an unsupported $7ab$.
8.(b) (w =) 16	B1	Allow an embedded answer unless contradicted.
8.(c) 42	B2	B1 for sight of one of the following: • –8 (but not -8x) • 50 (but not 50y) • 2 × –4 + 5 × 10 • 2 (–4) + 5(10) • an unsupported 58
8.(d) n - 3	B1	Mark final answer. B0 for $n = n$ - 3.
	(6)	

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9.(a) (24 ÷ 4 =) 6 24 ÷ 12 × 5 (= 10) (Hours left =) 24 – 6 – 10 (– 3 – 4) oe OR (Hours used =) 6 + 10 + 3 (+ 4) Correct conclusion e.g. • '5 hours (left so more than 4 hours)' • '5 hours (left so enough time)' • '7 hours left so enough time for the gym and homework' • 'only adds to 19 (hours so enough time for homework)' • '23 hours (so one hour spare)' • '(Yes, with) one hour spare'	 B1 B1 M1 A1	 Dependent on B1 previously awarded. 'FT their 10' if 24 ÷ 12 × 5 incorrectly evaluated. CAO
Alternative method *1/4 = 6/24* *5/12 = 10/24* *6/24 + 10/24 + 3/24 (=19/24)* *OR* *6/24 + 10/24 + 3/24 + 4/24 (=23/24)* *OR* *24/24 - 6/24 - 10/24 - 3/24 (=5/24)* *Correct conclusion*	 *B1* *B1* *M1* *A1*	 *Dependent on at least one B1 previously awarded.* *CAO. Allow 23/24.*
9.(b) Suitable criticism e.g. • 'the (vertical) scale is not uniform' • 'time doesn't increase in equal amounts' • '(the axis) goes up in 10s and then 5s' • '5 is missing' • '15 is missing'	E1	Do not allow • 'the scale is wrong' • 'it should go up in 10s' • 'it should go up in 5s' • 'there are arrows missing on the axis'
	(5)	
10. 3, 6, 8, 8 in any order	B3	There must be 4 numbers otherwise B0. Numbers in boxes take precedence. B2 for satisfying 2 of the 3 conditions. B1 for satisfying 1 of the 3 conditions. Conditions to check: Mode 8, Median, 7, Range 5.
	(3)	

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11.(a) 72 (km) 105(°)	 B1 B1	 ± 1.6 km ± 2°
11.(b) Point C 6 cm from B Point C on a bearing of 240° from B	 B1 B1	<u>Overlay</u> Allow unambiguous indication for C. e.g. the end of the line ± 2 mm ± 2°
11.(c) 090(°)	B1	Do not accept 90(°)
	(5)	
12. (Tram arrives at) 13:33 or 1:33(p.m.)	B3	Answer space takes precedence for B3. B2 for one of the following: • using the tram that leaves at 12:48 to get their final answer. • a final answer of 12:48. • 12:93 (arrival time in incorrect format) • arrives 7 minutes early (before 13:40) • a final answer of (0)1:33a.m or 01:33. • a final answer of 12:57, 13:09 or 13:21 • FT 'their derived 12:48' provided the tram arrives between 13:28 and 13:40 inclusive. B1 for one of the following: • (tram leaves before) 12:55 • FT 'their derived 12:48' provided the tram arrives before 13:40. • appropriate sight of 12:45. • a final answer of 1:09(a.m.) or 1:21(a.m.)
	(3)	
13.(a) $\frac{9}{4}$ OR $2\frac{1}{4}$	B2	Mark final answer. B1 for one of the following: • sight of $\frac{27}{12}$ • a final answer of 2·25 or $2\frac{3}{12}$ • a correct answer for B2 spoilt by further working. If no marks, award SC1 for an answer of $\frac{4}{9}$.

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13.(b)(i) 2	B1	
13.(b)(ii) 1 or 8	B1	Allow 1 and 8.
13.(b)(iii) 20	B1	Allow 20 × 20 (= 400) or 20^2 (= 400)
	(5)	
14. (Probability of winning) = $\frac{7}{20}$ o.e (Number of winners =) $\frac{7}{20}$ × 80 = 28 (Profit =) 80 × 1.5(0) – 28 × 3 (= 120 – 84) = (£)36	 B1 M1 A1 M1 A2	 FT 'their $\frac{7}{20}$' provided <1 and ≠ $\frac{1}{4}$ or $\frac{1}{2}$ Implies B1. Allow $\frac{28}{80}$. FT FT 'their derived number of winners' if less than 80. Must be a whole number. FT A1 for either (£)120 or (£)84 If no marks, award SC1 for (80 × 1.5 =)120.
Alternative method for last three marks *(28 winners receive the money paid by 56 people so profit =)* (80 – 2 × 28) × 1.5(0) = (£)36	 M1 A2	 FT 'their derived/stated number of winners' if less than 80. Must be a whole number. FT
Alternative method *(Number of winning balls = 20 – 13 =) 7* *(Prize money paid to 20 players =) 7 × 3* *(=£21)* *(Profit made from 20 players =)* *20 × 1.5(0) – 7 × 3* *(= £9)* *(Profit made from 80 players = (£) 9 × 4 =)* (£)36	 *M4* *m1* *A1*	 *If no marks, award* • *SC5 for a final answer of (£)48 from the use of 6 winning balls.* • *SC3 for an intermediate answer of (£)12 from the use of 6 winning balls (for 20 players).They may or may not continue afterwards.*
	(6)	

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15.(a) 30 (minutes)	B1	Accept 0·5 hours
15.(b)(i) Straight lines drawn between: • (11:15, 25) and (12:45, 25) (12:45, 25) and (13:15, 0).	 B1 B1	Mark intention. FT 'their 12:45' provided < 13:15.
15.(b)(ii) (speed =) $\frac{25}{0.5}$ oe or 25 + 25 oe 50 (miles per hour)	M1 A1	FT 'their 0.5' provided 'their 12:45' < 13:15 and ≠ 1 hour. FT
	(5)	
16.(a) $\frac{480}{7+5} \times 7$ OR $\frac{480}{7+5} \times 5$ £280 AND £200	M1 A1	 Allow in any order. Allow (£)280 : (£)200 or (£)200 : (£)280. Sight of (£)280 or (£)200 implies M1.
16.(b) $\frac{42}{300}$ (× 100) oe OR 42 ÷ 3 14 (%)	M1 A1	Must be a complete equivalent method e.g. 100% = 300, 10% = 30, 1% = 3 30 + 3 + 3 + 3 + 3 = 10% + 1% + 1% + 1% + 1% M1 A0 for a final answer of $\frac{14}{100}$ or 0·14.
	(4)	
17.(a) • $7 \times \frac{2}{3}$ • $\frac{2}{3}+\frac{2}{3}+\frac{2}{3}+\frac{2}{3}+\frac{2}{3}+\frac{2}{3}+\frac{2}{3}$ • 7 × 0.66 oe OR 7 × 0.67 oe OR 7 × 0.6̇ oe OR 7 × 0.7 oe • $\frac{14}{3}$ • $4\frac{2}{3}$ • 4.62 OR 4.69 OR 4. 6̇ OR 4.9 5 (tins)	M1 A1 B1	May be calculated using diagrams. '2 tins for 3 days' implies M1. '4 tins for 6 days' implies M1 A1. Strict F.T. 'their $\frac{14}{3}$' rounded up, provided M1 awarded. Sight of 5 tins does not imply M1 A1. An unsupported 5 (tins) scores B1 only.
17.(b) 3 : 17	B2	B1 for one of the following: • a final answer of 17 : 3 • sight of 15 : 85 (except 15% : 85%) • correct simplification of their 15 : x where $x > 15$ and $x < 100$. Must require full simplification. • a final answer of 3% : 17% • an equivalent ratio to 15 : 85 – possibly non-integer e.g. 0.15 : 0.85.
	(5)	

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18.(a) –4 5 11	B2	B2 for all 3 values. B1 for 2 correct values. Table takes precedence if conflicting values given.
18.(b) A correct line drawn from (–2, –4) to (3, 11).	B2	B1 for either: • the correct line drawn but not over the full domain • for 5 points (FT) plotted correctly and up to 1 incorrect.
	(4)	
19.(a) $\frac{10}{10+8+7}$ (× 100) − $\frac{7}{10+8+7}$ (× 100) oe = 40% − 28% = 12% OR $\frac{10-7}{10+8+7}$ (× 100) oe = $\frac{3}{25}$ = 12% OR $\frac{100}{10+8+7}$ × (10 - 7) oe = $\frac{100}{25}$ × 3 = 12% (4 × 3)	B2	May be seen in stages. Must be convincing. Provided no incorrect work seen. B1 for one of the following: • $\frac{10}{10+8+7}$ (× 100) oe • 40% • $\frac{7}{10+8+7}$ (× 100) oe • 28% • $\frac{10-7}{10+8+7}$ (= $\frac{3}{25}$)
Alternative method *7 : 8 : 10 = 28(%) : 32(%) : 40(%)* *40(%) – 28(%) = 12% oe*	*B2*	*B1 for 7 : 8 : 10 = 28(%) : 32(%) : 40(%)*
Alternative method 2 7 + 8 + 10 = 25 (hours) 100% = 25 (hours) 10% = 2·5 (hours) 1% = 0·25 (hours) 12% = 2·5 + 0·25 + 0·25 = 3 (hours) oe	*B2*	
19.(b) $\frac{70}{1+2+0.5}$ × 2 oe OR $\frac{70}{2+4+1}$ × 4 oe OR (£)10, (£)20, (£)40 in any order (may be seen as a ratio)	M2	May be seen in stages. M1 for 1 : 2 : 0·5 oe seen or implied. May be in any order and/or not explicitly in a ratio. May be seen as an equation e.g. • $x + 2x + 0{\cdot}5x = 70$ • $x + 2x + 4x = 70$ • $x + 0{\cdot}5x + 0{\cdot}25x = 70$
(£)40	A1	CAO
	(5)	

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20*. Radius of circle (= 15 – 5 =) 10 (cm)	B1	May be seen in further work or on diagram Diameter = 20 (cm) implies B1.
(Curved length =) (¼ ×) 2 × π × 10	M1	FT 'their 10' Allow 15·7(0…) or 15·71
= 5π	A1	FT 'their 10' provided ¼ × 2 × π × 'their 10' has been used .
(Perimeter =) 5π + 30 (cm)	B1	FT 'their 5π' + 30 provided from use of ¼ × 2πr Award B1 M1 A1 B0 for an answer of 45.7(0….)
	(4)	

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21*.(a) -4	 B1	
21*.(b) 2c + 1.5d < 20 or 2c + 1.5d ≤ 19.50 or 20 - 2c -1.5d > 0 or 200c + 150d < 2000 oe or 3.5 ≤ 2c + 1.5d < 20 or 0 < 2c + 1.5d < 20	 B2	Mark final answer B1 for one of the following: • 2c + kd < 20 (k≠1.5 and k≠ 0) • 20 – 2c – kd > 0 (k≠1.5 and k≠ 0) • kc + 1.5d < 20 (k≠2 and k≠ 0) • 20 – kc – 1.5d > 0 (k≠2 and k≠ 0) • 2c + 1.5d '> or ≥ or ≤' 20 (not = 20) • 2c + 1.5d ≤ 19(.99) • c and d reversed 2d + 1.5c < 20 • other letters rather than c and d in a correct inequality e.g. 2x + 1.5y < 20 • inclusion of 'x' signs e.g. cx2 + dx1.50 < 20 • c2 + d1.5 < 20 Penalise -1 if mixed units are used e.g. • 200c + 150d < 20 B2-1 (1 mark) • 200c + 1.5d < 2000 B2-1 (1 mark) • 2c + 150d > 20 B1-1 B1-1 (0 marks) Possible B1 if using double inequality but with similar errors in notation as mentioned from B1s above (e.g. 3.5 ≤ c2 + d1.5 < 20)
	(3)	
22*. (BC =) $\sqrt{(10^2 – 6^2)}$ or $BC^2 = 10^2 - 6^2$ or better (BC =) 8 (cm) (Surface area =) (2 × ½ ×) 8 × 6 + 6 × 7 + 8 × 7 + 10 × 7 or 8 × 6 + (6 + 8 + 10) × 7 oe (= 2x24 + 42 + 56 + 70) 216 (cm^2)	M2 A1 M2 A1	M2 for appropriate sight of 6, 8, 10 M1 for any one of the following: • $6^2 + (BC)^2 = 10^2$ • $10^2 - 6^2$ including $BC = 10^2 - 6^2$ • 64 including BC = 64 May be seen on diagram M1 for a sum including 3 different correct calculations for areas ie omitting or miscalculating just one/both triangles or one rectangle FT for M2 or M1 provided Pythagoras attempted. • If 'their BC' < 10, FT for a possible M2 or M1. • If 'their BC' ≥ 10, FT for a possible M1 only. FT for 'their surface area' correctly evaluated, provided the second M2 awarded.
	(6)	

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23*.(a) 10x = 130	B2	B1 for either of the following: • 10x = k (k≠0) • 2x+9 + 3x + 5x-7 + 10 = 142 or better
(x =) 13	B1	FT 'their 2x+9 + 3x + 5x-7 + 10 = 142' provided only one error FT 'their 10x = k' Sight of $x = k / 10$ implies previous B1 for $10x = k$ Allow fraction or decimal on FT. Ignore any subsequent attempts of rounding a fraction or decimal to the nearest whole number. Award B2 B1 for a final answer of $x = 13$ provided not from incorrect workings. If no marks, award SC1 for two correct trials where x>1 with correct total for the expressions (with or without 10) e.g. x = 11, 31 + 33 + 48 + 10 = 122 or 31 + 33 + 48 = 112
23*.(b) 58/142 oe ISW	B2	FT 'their 13' provided ≤ 29, allow rounded or truncated on FT B1 for any one of the following: • (5 × 13 – 7) / 142 • (5x – 7) /142 • Appropriate sight of 58 • Appropriate sight of a correctly evaluated 5 x 'their 13' – 7' • 58 out of 142 or 58:142 • a decimal left on numerator (from FT)
	(5)	
24*.(a) 2·5	B2	B1 for $2\frac{1}{2}$ or $\frac{10}{4}$ or $\frac{5}{2}$ or $\frac{1}{0{\cdot}4}$ or $\frac{1}{\left(\frac{4}{10}\right)}$ oe or -2.5

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24*.(b) $\frac{27+6}{0.3}$ 110	 M2 A1	 May be seen in stages. Award M1 for any one of the following: • appropriate sight of 33 (from 27 + $\sqrt{36}$ OR 3^3 + 6 OR 3^3 + $\sqrt{36}$) • sight of any TWO of 27, 6 (or 2 × 3), 0·3 correctly placed • $\frac{3^3+\sqrt{4\times9}}{0.3}$ oe Note: sight of 27, 6 and 0.3 not written within expression is awarded M0 CAO Mark final answer Award a possible M2A0 for $\frac{30+6}{0.3}$ if 27 seen but then changed to 30.
	(5)	
25*. (Area =) 6·2 ÷ 0·05 124 (cm^2) (Length of cuboid =) 124 ÷ 8 15·5 (cm)	 M2 A1 M1 A1	 M1 for 0·05 = 6·2 ÷ Area CAO FT 'their 124' provided at least M1 previously awarded FT
Alternative method. *0·05 = 6·2 / 8x* *0·05 × 8x = 6·2* *x = 6·2 ÷ (0·05 × 8)* *x = 15·5 (cm)*	 *M2* *M1* *m1* *A1*	 *M1 for 0·05 = 6·2 ÷ 8x* *CAO*
	(5)	
26*. 125	 B2	 B1 for one of the following: • 5^3 • $\frac{1}{5^{-3}}$ • $\left(\frac{1}{5}\right)^{-3}$ If no marks, award SC1 for (5^{-3} =) $\frac{1}{125}$ or 0.008
	(2)	

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27*.(a) 24 × 5 or (÷1.6) oe 8 × 300 or × 5 or (÷ 0.6) oe 180 3 = 25 (hours)	M1 M1 A1	A table method altering all 3 values in the same ratio at the same time is M0 M marks may be seen in either order e.g. Workers Length Time 8 180 15 **FT from M0 previously awarded** Must be from use of 24 e.g. if this calculation is performed first e.g. Workers Length Time 5 300 40 CAO
Alternative method *(Number of metres per worker per hour =)* *(180 ÷ 5) ÷ 24 (= 1·5)* *(Number of hours needed =)* *300 ÷ (((180 ÷ 5) ÷ 24) × 8)* *(= 300 ÷ (1·5 × 8) = 300 ÷ 12)* *= 25 (hours)*	 *M1* *M1* *A1*	*May be seen in stages* *CAO*
27*.(b)(i) Reference to all workers working at the same rate (as before). Examples for E1: Working as hard (as the original 5) etc Work at constant/same pace or speed	 E1	 Do not allow: Examples for E0: 'each worker does the same amount of work' 'any reference to breaks cost/availability of materials and/or tools' 'all workers built the same amount of wall' 'that they will work continuously' 'the 8 workers will work in the same amount of time as the 5 workers'
27*.b(ii) Time or answer will change / increase / decrease dependent on (b)(i)	 E1	 If no valid assumption is made, then this mark cannot be awarded. Cannot award E0 E1.
	(5)	

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