

Target Test Calculator 1

Mark Scheme

1380/4H				
Question	Working	Answer	Mark	Notes
1		43 25 (19) 87 (36) (42) 35 113 (79) 67 (54) (200)	3	B3 for all 6 correct (B2 for 4 or 5 correct) (B1 for 2 or 3 correct)
2	(a)	28.38461538	2	B2 for 28.3846.... (B1 for 107.01 or 3.77 or 28.38(...) or $28\frac{5}{13}$ oe seen)
	(b)	30	1	B1ft for 30 or for answer >1sf in (a) rounded to 1 sf
3	(a)	$3 \times 2 + 5 \times -4$	2	M1 for $3 \times 2 + 5 \times -4$ oe or 6 and -20 seen A1 cao for -14
	(b)	$3(m-2)$	1	B1 cao
4		Reason	1	B1 for 'The first 2 pages may not be typical of the whole magazine' oe or 'sample size too small' oe

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5	(i)		45	1	B1 cao
	(ii)			1	B1 (dep) for corresponding angles (accept F angles) or any other complete reason that includes properties of parallel lines e.g. alternate angles (accept Z angles) with 45 marked on diagram (or angles on a straight line = 180) or allied angles with 135 marked on diagram
6		$\pi \times 5 \times 5$	78.5	2	M1 for $\pi \times 5 \times 5$ (accept π as 3.1 or better) A1 for 77.5 to 78.6 or 25π
7		$1.72 \div 2$ (= 0.86) $7.65 \div 9$ (= 0.85)	Large box with reasons	3	M1 for $1.72 \div 2$ (= 0.86) M1 for $7.65 \div 9$ (= 0.85) A1 for large box or 9 kg with correct calculations OR M1 for $2 \div 1.72$ (= 1.162...) M1 for $9 \div 7.65$ (= 1.176...) A1 for large box or 9 kg with correct calculations OR M2 for $7.65 \times 2 \div 9$ (=1.70) or for $1.72 \div 2 \times 9$ (=7.74) A1 for large box or 9 kg with correct calculations OR M1 for 1.72×9 (= 15.48) M1 for 7.65×2 (= 15.30) A1 for large box or 9 kg with correct calculations NOTE: Accept equivalent methods for comparison

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8		Rotation 180° Centre (0, 1)	3	B1 for rotation B1 for 180 (or half turn) B1 for (0, 1) OR B1 for enlargement B1 for scale factor -1 B1 for (0, 1) (B0 for any combination of transformations)
9	$360 + \frac{17.5}{100} \times 360$	423	3	M1 for $\frac{17.5}{100} \times 360$ oe or 10% + 5% + 2.5% oe (condone 1 calculation error) or 63 seen or 36, 18 and 9 seen M1 (dep) for 360 + '63' A1 for 423 OR M2 for 1.175×360 oe A1 for 423
10	(a)	Negative	1	B1 cao
	(b)	117 – 123	2	M1 for a line of best fit drawn between (9, 130) & (9, 140) and between (13, 100) & (13, 110) inc.. A1 for 117 – 123 inclusive

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11	(a)	$2x + 9 + 2x - 3 + 4x + 5$	$8x + 11$	2	M1 for attempting to add $2x + 9$, $2x - 3$ and $4x + 5$ or for $8x + c$, $c \neq 0$ A1 for $8x + 11$
	(b)	$8x + 11 = 39$ $8x = 28$	3.5	2	M1 for " $ax (+ c) = 39$ or $(39 - 'c') \div 'a'$ " A1ft. for 3.5 oe provided ' $c' \neq 0$ in (a)
12		$180 \div 9 (=20)$ 20×4	80	3	M2 for $180 \div (2 + 3 + 4) \times 4$ or 40, 60, 80 seen (M1 for $180 \div (2 + 3 + 4)$ or 20 seen A1 cao
13		$3 \rightarrow 33$ $4 \rightarrow 72$ $3.1 \rightarrow 35.9(91)$ $3.2 \rightarrow 39.1(68)$ $3.3 \rightarrow 42.5(37)$ $3.4 \rightarrow 46.1(04)$ $3.5 \rightarrow 49.8(75)$ $3.6 \rightarrow 53.8(56)$ $3.7 \rightarrow 58.0(53)$ $3.8 \rightarrow 62.4(72)$ $3.9 \rightarrow 67.1(19)$ $3.75 \rightarrow 60.2(34375)$	3.7	4	B2 for a trial between 3.7 and 3.8 inclusive (B1 for a trial between 3 and 4 inclusive) B1 for a different trial between 3.7 and 3.8 exclusive B1 (dep on at least one previous B1) for 3.7 NB Trials should be evaluated to at least 1dp truncated or rounded

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14	(a)		m^7	1	B1 for m^7 , (accept m^{3+4})
	(b)		p^4	1	B1 for p^4 , (accept p^{7-3})
	(c)		$12x^3y^5$	2	B2 cao (B1 for two of 12, x^3 , y^5 , ignore \times signs)
15		$14^2 + 12^2$ $= 196 + 144 = 340$ $\sqrt{340} = 18.4\dots$	18.4	3	M1 for $14^2 + 12^2$ M1 (dep) for $\sqrt{14^2 + 12^2}$ A1 for 18.4 to 18.44
16	(a)		9, -3, 3	2	B2 for all three correct (B1 one or two correct)
	(b)			2	B1 ft for all 7 'points' plotted correctly ± 1 square B1 ft (indep) for a smooth curve through 6 or 7 of their plotted points provided at least B1 awarded in (a), with 6 or 7 points correctly plotted and (1, -3) & (2, -3) not joined with a straight line
17	(a)		$150 \leq h < 160$	1	B1 for $150 \leq h < 160$ (accept 150 to 160)
	(b)	$(125 \times 8) + (135 \times 16) +$ $(145 \times 25) + (155 \times 30) +$ (165×21) $= 1000 + 2160 + 3625 +$ $4650 + 3465$ $= 14900$ $14900 \div 100$	149	4	M1 for $f \times h$ for at least 3 consistent values of h in or at either end of intervals M1 (dep) for use of all correct mid-interval values (for 1 st interval accept 124.5 to 125) M1 (dep on 1 st M1) for $\sum fh \div \sum f$ A1 cao

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18	(a)	$x^2 - 3x + 5x - 15$	$x^2 + 2x - 15$	2	B2 for $x^2 + 2x - 15$ (B1 for $x^2 - 3x + 5x - 15$ with at least 3 terms correct or 4 terms correct ignoring signs)
	(b)	$\frac{29-x}{4} \times 4 = x \times 4 + 5 \times 4$ $29 - 20 = 4x + x$ $5x = 9$	1.8	3	M1 for multiplying through by 4 or $\frac{29-x}{4} - \frac{x}{4} = x + 5$ M1 for correct rearrangement of their 4 terms to separate x and non- x terms A1 for 1.8 oe

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19	$\cos x = \frac{8.2}{10.6} = 0.77358\dots$ $x = \cos^{-1} \frac{8.2}{10.6} = 39.323\dots$	39.3	3	M1 for $\cos x = \frac{8.2}{10.6}$ or $\cos \frac{8.2}{10.6}$ M1 for $\cos^{-1} \frac{8.2}{10.6}$ A1 for 39.3 – 39.33 SC: M2A0 for 0.686 or 43.69 or 39.2 or 39.37... or 39.4