SOLVING ONE STEP EQUATIONS

Pearson Edexcel - Tuesday 12 June 2018 - Paper 3 (Calculator) Higher Tier

1.

7	3.8	M1 M1 A1	for a correct first step, eg $5-x=2(2x-7)$ or $5-x=4x-14$ or $\frac{5}{2}-\frac{x}{2}=2x-7$ (dep) for isolating terms in x eg $4x+x=14+5$ or $-\frac{x}{2}-2x=-7-\frac{5}{2}$ oe	Method must show LHS ×2 and both terms on RHS ×2 or $5-x$ and both terms on RHS ×2 eg $-4x$ both sides with -5 both sides or $+x$ both sides with $+14$ both sides Accept $\frac{19}{5}$, $3\frac{4}{5}$ oe but not $\frac{-19}{-5}$ oe

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2.

17	(a)		$x<7$	2	M1 for isolating term in x eg $3x<16+5$ or $3x<21$ or for $(x=)\ 7$ or $x>7$ etc A1 cao
	(b)		$\frac{7}{5}$	3	M1 for multiplying by 4 or adding $\frac{w}{4}$ or subtracting $\frac{11}{4}$ or subtracting 1 [all applied to both sides and as a first step] M1 for isolating terms in w on one side and number terms on the other side of the equation A1 for $\frac{7}{5}$ oe

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3.

2	(a)		36	1	B1 cao
	(b)		2.5 oe	2	M1 for collecting the terms in x or the number terms in an equation, eg. $5x-x+4=14$ or $5x=14-4+x$ A1 for 2.5 oe (accept $\frac{10}{4}$)

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4.

5		$c=\frac{30\times40}{150}$	8	2	M1 for $\frac{30\times40}{150}$ **or** 1200 seen A1 cao

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5.

1	(a)		$a+2b$	2	M1 for 2a – a (=a) **or** $3b - b$ (=2b) A1 for $a + 2b$ **or** $1a + 2b$
	(b)		$8m - 12n$	1	B1 cao

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6.

8	(a)	$13x+1=11x+8$ $13x - 11x = 8 - 1$ or $1 - 8 = 11x - 13x$	3.5	2	M1 for showing the intention to isolate either the algebraic or the numerical terms in an equation e.g. $13x - 11x$ or $8 - 1$ A1 for 3.5 or $3\frac{1}{2}$ or $\frac{7}{2}$ oe
	(b)	Substitute $y = -2$ into $\frac{4}{y} + y = 2y$ LHS $= \frac{4}{-2} + (-2) = -4$ RHS $= 2\times(-2) = -4$ **OR** $4 + y^2 = 2y^2$ $y^2 = 4 \quad y = \pm 2$	Shown	2	M1 for substituting $y = -2$ into $\frac{4}{y} + y = 2y$ or $\frac{4}{-2} + -2 = 2\times -2$ or any correct rearrangement A1 for showing that LHS & RHS both = – 4 **OR** M1 $4 + y^2 = 2y^2$ A1 $y = \pm 2$ from a correct process

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7.

5	(a)(i)	$5 \times (-2)^2 + 2$ $= 5 \times 4 + 2$	22	1	B1 cao
	(ii)	$47 - 2 = 45$ $45 \div 5 = 9$	3	2	M1 for $\frac{47-2}{5}$ or $\frac{47+2}{5}$ A1 for 3 or −3 (accept ±3)
	(b)		–1, 0, 1, 2, 3	2	B2 cao (B1 for at least 4 correct and not more than one incorrect integer)

8.