

Topic 4 Algebra 2 (Post-TT) [38] MARKSCHEME

1.

$2x + 10$ seen B1

$6x$ and/or -3 seen M1

Or $-6x$ or 3

$x = -\frac{1}{2}$ A1

Do not accept $\frac{-3}{6}$

[3]

2.

$x^2 = w - y$ B1

$x = \sqrt{w - y}$ B1

Accept $\pm\sqrt{w - y}$ and $-\sqrt{w - y}$

[2]

3.

(a) $2x < 22$ [M1]

$x < 11$ [A1]

(b) $-6x \leq 12$ or $-12 \leq 6x$ [M1]

$x \geq -2$ [A1]

4.

$\frac{t}{3} = u - 5$ M1

Or $3u = t + 15$

$t = 3(u - 5)$ or $3u - 15$ A1

[2]

5.

$4x + 12 = 9x - 18$ M1

Allow one error

$5x = 30, -30 = -5x$ A1ft

ft if M1 awarded and equation is in form $ax = b$ with no further errors

$x = 6$ A1ft

Follow through only if M1 awarded for fully correct first line and one error made in rearranging so A0 awarded, and their equation of form $ax = b$ is solved correctly

[3]

6.

42	P1 process to start problem solving eg forms an appropriate equation P1 complete process to solve equation A1 cao
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7.

Expanding brackets: $16 - 8x > 64$ [M1] oe

Rearranging: $-8x > 48$
 $x < -6$ [M1]

Largest integer value is -7 [A1]

8.

$$12 - y = 3 \times 5$$

M1 for cross multiplying 3

M1

$$12 - 15 = y$$

A1 collecting terms

A1

$$y = -3$$

A1 cao

A1

[3]

9.

<p>Alexander = 120 (minutes) Reiner = 180 (minutes) Wim = 90 (minutes)</p>	<p>4 2 AO1.3b 1 AO3.1d 1 AO3.3</p>	<p>M1 for any two correct expressions, e.g. $r = 2w$, $a = w + 30$, $a + r + w = 390$ M1 for equating one variable, e.g. $w + 30 + 2w + w = 390$ oe A1 for solving for one variable, e.g. $w = 90$ oe</p>
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10.

(a) $20 = 4x$

$$\frac{20}{4} = x$$

M1

5

A1

(b) $y + 5 \times 3 = 9 \times 3$

$y/3 = 9 - 5$, $y/3 = 9 + 5$,
($3y + 15 = 27$ is M0)

M1

12

A1

(c) $4z - 4 = 2z + 6$

$$2z - 2 = z + 3$$

M1

$$2z = 10$$

A1

$$2z - z = 3 + 2$$

5

A1

[7]

11.

$$y(3x - 4) = xy + 2$$

$y \times 3x - 4 = xy + 2$ is M0 unless recovered

M1

$$3xy - 4y = xy + 2$$

A1

$$2xy = 4y + 2$$

M1

dep $3xy - xy = 4y + 2$ Allow one 'sign' error

$$x = \frac{2y + 2}{y}$$

A1

oe Do not award if $x =$ not written

$$SC x = \frac{3}{y} \quad B2$$