LINEAR EQUATIONS

DATE OF SOLUTIONS: 09/06/2018
MAXIMUM MARK: 66

SOLUTIONS

GCSE (+ IGCSE) EXAM QUESTION PRACTICE

1. Linear Equations **[2 marks]**

Solve $3x+4=17$

$3x+4 = 17$

$3x = 13$ (M1)

$x = \frac{13}{3}$

$= 4\frac{1}{3}$ (A1)

2. Linear Equations **[2 marks]**

Solve $7-4x=10$

Show clear algebraic working.

$7-4x=10$

$-4x=3$ (m1)

$x=\frac{3}{-4}$

$=-\frac{3}{4}$ (A1)

3. Linear Equations **[2 marks]**

Solve $13-2x=6$

$13-2x=6$

$-2x=-7$ (M1)

$x=\frac{-7}{-2}$

$=\frac{7}{2}$

$=3.5$ (A1) [EITHER]

4. Linear Equations **[2 marks]**

Solve $5(x+3)=30$

$5(x+3)=30$

$x+3=\frac{30}{5}$

$x+3=6$ (M1)

$x=3$ (A1)

OR

$5(x+3)=30$

$5x+15=30$

$5x=15$

$x=\frac{15}{5}$

$=3$

5. Linear Equations **[3 marks]**

Solve $4(x-1)=18$

Show clear algebraic working.

$4(x-1) = 18$

$4x - 4 = 18$ (M1)

$4x = 22$ (M1)

$x = \frac{22}{4}$

$= \frac{11}{2}$

$= 5.5$ (A1) [EITHER]

6. Linear Equations **[3 marks]**

Solve $6(3y+5)=39$

$6(3y+5) = 39$

$18y + 30 = 39$ (M1)

$18y = 9$ (M1)

$y = \frac{9}{18}$

$= \frac{1}{2}$ (A1)

7. Linear Equations **[3 marks]**

Solve $6y-9=3y+7$

Show clear algebraic working.

$6y-9=3y+7$

$3y-9=7$ (m1)

$3y=16$ (m1)

$y=\frac{16}{3}$

$=5\frac{1}{3}$ (A1)

8. Linear Equations **[3 marks]**

Solve $6x+13=2x+7$

$6x+13=2x+7$

$4x+13=7$ (m1)

$4x=-6$ (m1)

$x=\frac{-6}{4}$

$=-\frac{3}{2}$

$=-1.5$ (A1) [EITHER]

9. Linear Equations **[3 marks]**

Solve $3m+5=7m+3$

$3m+5=7m+3$ } SAME!

$7m+3=3m+5$

$4m+3=5$ (M1)

$4m=2$ (M1)

$m=\frac{2}{4}$

$=\frac{1}{2}$ (A1)

10. Linear Equations **[3 marks]**

Solve $2x-1=5x-3$

Show clear algebraic working.

$2x-1=5x-3$ } SAME!

$5x-3=2x-1$ }

$3x-3=-1$ (m1)

$3x=2$ (m1)

$x=\frac{2}{3}$ (A1)

11. Linear Equations **[3 marks]**

Solve $7x-2=1-3x$

$7x-2=1-3x$

$10x-2=1$ (m1)

$10x=3$ (m1)

$x=\frac{3}{10}$ (A1)

12. Linear Equations **[3 marks]**

Solve $3x+16=1-2x$

$3x + 16 = 1 - 2x$

$5x + 16 = 1$ (m1)

$5x = -15$ (m1)

$x = \frac{-15}{5}$

$= -3$ (A1)

13. Linear Equations **[3 marks]**

Solve $4(x-3)=7x-10$

Show clear algebraic working.

$4(x-3) = 7x - 10$

$4x - 12 = 7x - 10$ (m1) } SAME!

$7x - 10 = 4x - 12$

$3x - 10 = -12$ (m1)

$3x = -2$

$x = -\frac{2}{3}$

$= -\frac{2}{3}$ (A1)

14. Linear Equations **[3 marks]**

Solve $8p-18=3(p+3)$

$8p-18=3(p+3)$

$8p-18=3p+9$ (m1)

$5p-18=9$ } (m1) [EITHER]

$5p=27$ }

$p=\frac{27}{5}$ } (A1) [EITHER]

$=5\frac{2}{5}$ }

15. Linear Equations **[3 marks]**

Solve $5(x+2)=3(x-4)$

$5(x+2) = 3(x-4)$

$5x + 10 = 3x - 12$ (M1)

$2x + 10 = -12$

$2x = -22$ } (M1) [EITHER]

$x = \frac{-22}{2}$

$= -11$ (A1)

16. Linear Equations **[3 marks]**

Solve $3(2x+5)=4-x$

Show clear algebraic working.

$3(2x+5) = 4-x$

$6x+15 = 4-x$ (m1)

$7x+15 = 4$ } (m1) [EITHER]

$7x = -11$ }

$x = \frac{-11}{7}$ } (A1) [EITHER]

$= -1\frac{4}{7}$ }

17. Linear Equations **[3 marks]**

Solve $4(5y-1)=3(6y+7)$

$4(5y-1) = 3(6y+7)$

$20y - 4 = 18y + 21$ (m1)

$2y - 4 = 21$

$2y = 25$ } (m1) [EITHER]

$y = \frac{25}{2}$

$= 12.5$ } (m1) [EITHER]

18. Linear Equations **[2 marks]**

Solve $\frac{x}{5}-2=4$

$\frac{x}{5} - 2 = 4$

$\frac{x}{5} = 6$ (M1)

$x = 6 \times 5$

$= \underline{\underline{30}}$ (A1)

19. Linear Equations **[2 marks]**

Solve $\frac{x+5}{2}=7$

$$\frac{x+5}{2} = 7$$

$$x+5 = 14 \quad (M1)$$

$$x = 9 \quad (A1)$$

20. Linear Equations **[3 marks]**

Solve $\frac{5x+4}{2}=3$

Show clear algebraic working.

$$\frac{5x+4}{2} = 3$$

$$5x+4 = 6 \quad (M1)$$

$$5x = 2 \quad (M1)$$

$$x = \frac{2}{5} \quad (A1)$$

21. Linear Equations **[3 marks]**

Solve $\frac{10-5x}{3}=2$

$$\frac{10-5x}{3} = 2$$

$$10-5x = 6 \quad \text{(m1)}$$

$$-5x = -4$$

$$x = \frac{-4}{-5} \quad \text{(m1) [EITHER]}$$

$$= \frac{4}{5} \quad \text{(A1)}$$

22. Linear Equations **[3 marks]**

Solve $\frac{12-x}{3}=7$

$$\frac{12-x}{3}=7$$

$$12-x=21 \quad (M1)$$

$$-x=9 \quad (M1)$$

$$x=-9 \quad (A1)$$

Solve $x = \frac{7-2x}{3}$

$$x = \frac{7-2x}{3}$$

$$3x = 7 - 2x \quad (m1)$$

$$5x = 7$$

$$x = \frac{7}{5} \quad (m1)\ [\text{EITHER}]$$

$$= 1.4 \quad (A1)$$

24. Linear Equations **[3 marks]**

Solve $\frac{7-2y}{4} = 2y+3$

Show clear algebraic working.

$$\frac{7-2y}{4} = 2y+3$$

$7-2y = 8y+12$ (M1)

$8y+12 = 7-2y$ } SAME!

$10y+12 = 7$

$10y = -5$ } (M1) [EITHER]

$y = \frac{-5}{10}$

$= -0.5$ (A1)

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