

Solving Equations Exam Practice



Q1. Solve the equation $2x + 5 = 19$

$$2x = 14$$
$$x = 7.$$

Answer: 7
(2 marks)

Q2. Solve the equation $4x - 7 = 55$

$$4x = 62$$
$$x = 15.5 \text{ or } \frac{31}{2}$$

Answer: $\frac{31}{2}$
(2 marks)

Q3. Solve the equation $2(x + 9) = 40$

$$2x + 18 = 40$$
$$2x = 32$$
$$x = 16$$

Answer: 16
(2 marks)



Q4. Solve the equation $8x - 5 = 5x + 37$

$$3x = 42$$

$$x = 14$$

Answer: 14
(2 marks)

Q5. Solve the equation $35 - 4b = 11b + 5$

$$30 = 15b$$

$$b = 2$$

Answer: 2
(2 marks)



Q6. Solve the equation $4(x - 8) = 6(x + 5)$

$$4x - 32 = 6x + 30$$

$$-62 = 2x$$

$$x = -31$$

Answer: -31
(2 marks)

Q7. Solve the equation $4(2a + 3) = 3(2a + 8)$

$$8a + 12 = 6a + 24$$

$$2a = 12$$

$$a = 6$$

Answer: 6
(3 marks)



Q8. Solve the equation $4(3x - 5) - 6(x + 5) = x$

$$12x - 20 - 6x - 30 = x$$

$$5x = 50$$

$$x = 10$$

Answer: 10
(3 marks)

Q9. Solve the equation $155 - 4w = 27$

$$128 = 4w$$

$$w = 32$$

Answer: 32
(2 marks)



Q10. Solve the equation $7x + 10\pi = 5x - 2\pi$, giving your answer in terms of π .

$$2x = -12\pi$$

$$x = -6\pi$$

Answer: -6π
(2 marks)

Q11. You are given that $146 \times 823 = 120158$. Use this fact to solve the equations:

(i) $146x = 120158$

$$823$$

Answer: 823
(2 marks)

(ii) $292x = 120158$

$$x = \frac{823}{2}$$

$$x = 411.5$$

Answer: 411.5
(2 marks)



Q12. Solve the equation for x : $25 - x = 3x + 12 - 5x$

$$25 - x = -2x + 12$$

$$x = -13$$

Answer: -13
(2 marks)

Q13. Rory is asked to solve the equation, $3x - 6 = x + 11$.

His solution is as follows:

$4x - 6 = x + 11$
$-6 = -3x + 11$
$-17 \rightarrow 17 = -3x$
$-\frac{17}{3} = x$
$x = -5.6 \leftarrow -5.6$

(i) Identify the mistakes in his solution

See above annotations

Answer: _____
(2 marks)

(ii) Write out a correct solution

$$\begin{aligned} -6 &= -3x + 11 \\ -17 &= -3x \\ \frac{17}{3} &= x \quad \text{or} \quad x = 5.6 \end{aligned}$$

Answer: _____
(2 marks)



Fractional Equations:

Q14. Solve the equation $8 + \frac{1}{2}x = 22$

$$\frac{1}{2}x = 14$$

$$x = 28$$

Answer: 28
(2 marks)

Q15. Solve the equation $\frac{x-9}{5} = 7$

$$x-9 = 35$$

$$x = 44$$

Answer: 44
(2 marks)

Q16. Solve the equation $3x + \frac{1}{2}x + 4 = 25$

$$\frac{7}{2}x = 21$$

$$7x = 42$$

$$x = 6$$

Answer: 6
(2 marks)



Q17. Solve the equation $\frac{12-3x}{2} + 11 = 20$

$$\frac{12-3x}{2} = 9$$

$$12-3x = 18$$

$$-6 = 3x$$

$$x = -2$$

Answer: -2
(3 marks)

Q18. Solve the equation $\frac{y-9}{y} = 13$

$$y-9 = 13y$$

$$-9 = 12y$$

$$-\frac{9}{12} = y$$

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

Answer: $-\frac{3}{4}$
(2 marks)

Q19. Solve the equation $\frac{1}{3}x + \frac{1}{2}x - 2 = 13$

$$\frac{1}{3}x + \frac{1}{2}x = 15$$

$$\frac{2x+3x}{6} = 15$$

$$\frac{5x}{6} = 15$$

$$5x = 90$$

$$x = 18$$

Answer: 18
(3 marks)