

Simple Equations (on Integers)

Question Paper, Set 07

Time: 1 hour 30 minutes

Maximum marks: 50

Name: _____ Class: _____ Date: _____

1. Answer all 20 questions. The marks for each question are shown in brackets.
2. Show your working for the 2, 3 and 5 mark questions.
3. The key sheet and worked solutions are at the end of this paper.

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|-------|--|-----------|
| 1. | Solve $x + 93 = 88$. | [1 mark] |
| <hr/> | | |
| 2. | Find x if $x - 7 = 8$. | [1 mark] |
| <hr/> | | |
| 3. | Find x if $x \times 8 = 544$. | [1 mark] |
| <hr/> | | |
| 4. | If $\frac{x}{6} = 110$, then find x . | [1 mark] |
| <hr/> | | |
| 5. | Solve: (i) $x + 26 = -83$ (ii) $x - 52 = -33$ (iii) $x \times 7 = 343$ (iv) $\frac{x}{18} = 324$ | [5 marks] |
| <hr/> | | |
| 6. | Find x if $x + 41708 = 107076$. | [1 mark] |
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| 7. | If $x \times 32 = 269088$, then find x . | [2 marks] |
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| 8. | Find x if $\frac{x}{-6} = -36$. | [1 mark] |
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| 9. | Solve $2x - 108 = -120$. | [2 marks] |
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| 10. | If $\frac{x}{3} - 110 = -183$, then find x . | [3 marks] |
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| 11. | Solve: (i) $\frac{5x}{3} + 2 = -28$ (ii) $\frac{3x}{8} - 22 = 14$ | [5 marks] |
| <hr/> | | |
| 12. | Solve $x + 5 = -31 - x$. | [2 marks] |
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| 13. | If $9x + 5 = 122 - 4x$, then find x . | [3 marks] |
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| 14. | Find x if $7x + 26 + 6x = 38 + 9x$. | [3 marks] |
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| 15. | If $57 - 8x = -127$, then find x . | [2 marks] |
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| 16. | Solve: (i) $2x + 24 = -171 + 3x$ (ii) $-8x + 36 - 6x = 148$ | [5 marks] |
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| 17. | The sum of two integers is -127 . If one of them is 15, then find the other. | [2 marks] |
| <hr/> | | |
| 18. | What number should be added to -62 to get 82? | [2 marks] |
| <hr/> | | |
| 19. | What number should be subtracted from -166 to get 172? | [3 marks] |
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- 20.** (i) The product of two integers is 960. If one of them is -15 , then find the other. (ii) The difference of two integers is 71. If the larger of them is -90 , find the smaller. [5 marks]
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Key sheet

Q	Answer
1	$x = -5$
2	$x = 15$
3	$x = 68$
4	$x = 660$
5	(i) $x = -109$, (ii) $x = 19$, (iii) $x = 49$, (iv) $x = 5832$
6	$x = 65368$
7	$x = 8409$
8	$x = 216$
9	$x = -6$
10	$x = -219$
11	(i) $x = -18$, (ii) $x = 96$
12	$x = -18$
13	$x = 9$
14	$x = 3$
15	$x = 23$
16	(i) $x = 195$, (ii) $x = -8$
17	-142
18	144
19	-338
20	(i) -64 , (ii) -161

Solutions

1. Solve $x + 93 = 88$. [1]

$$x + 93 = 88$$

$$\Rightarrow x = 88 - 93$$

$$\Rightarrow x = -5$$

$$\text{Ans: } x = -5$$

2. Find x if $x - 7 = 8$. [1]

$$x - 7 = 8$$

$$\Rightarrow x = 8 + 7$$

$$\Rightarrow x = 15$$

$$\text{Ans: } x = 15$$

3. Find x if $x \times 8 = 544$. [1]

$$x \times 8 = 544$$

$$\Rightarrow x = \frac{544}{8}$$

$$\Rightarrow x = 68$$

$$\text{Ans: } x = 68$$

4. If $\frac{x}{6} = 110$, then find x . [1]

$$\frac{x}{6} = 110$$

$$\Rightarrow x = 110 \times 6$$

$$\Rightarrow x = 660$$

$$\text{Ans: } x = 660$$

5. Solve: (i) $x + 26 = -83$ (ii) $x - 52 = -33$ (iii) $x \times 7 = 343$ (iv) $\frac{x}{18} = 324$ [5]

$$(i) \ x + 26 = -83$$

$$\Rightarrow x = -83 - 26$$

$$\Rightarrow x = -109$$

$$(ii) \ x - 52 = -33$$

$$\Rightarrow x = -33 + 52$$

$$\Rightarrow x = 19$$

$$(iii) \ x \times 7 = 343$$

$$\Rightarrow x = \frac{343}{7}$$

$$\Rightarrow x = 49$$

$$(iv) \ \frac{x}{18} = 324$$

$$\Rightarrow x = 324 \times 18$$

$$\Rightarrow x = 5832$$

$$\text{Ans: (i) } x = -109, (ii) \ x = 19, (iii) \ x = 49, (iv) \ x = 5832$$

6. Find x if $x + 41708 = 107076$. [1]

$$x + 41708 = 107076$$

$$\Rightarrow x = 107076 - 41708$$

$$\text{Column subtraction: } 107076 - 41708 = 65368$$

$$\Rightarrow x = 65368$$

$$\text{Ans: } x = 65368$$

7. If $x \times 32 = 269088$, then find x . [2]

$$x \times 32 = 269088$$

$$\Rightarrow x = \frac{269088}{32}$$

$$\text{Long division: } 269 \div 32 = 8, \text{ remainder } 13; 130 \div 32 = 4, \text{ remainder } 2; 28 \div 32 = 0, \text{ remainder } 28; \\ 288 \div 32 = 9, \text{ remainder } 0$$

$$\Rightarrow x = 8409$$

$$\text{Ans: } x = 8409$$

8. Find x if $\frac{x}{-6} = -36$. [1]

$$\frac{x}{-6} = -36$$

$$\Rightarrow x = (-36) \times (-6)$$

$$- \times - = +$$

$$\Rightarrow x = 216$$

$$\text{Ans: } x = 216$$

9. Solve $2x - 108 = -120$. [2]

$$2x - 108 = -120$$

$$\Rightarrow 2x = -120 + 108$$

$$\Rightarrow 2x = -12$$

$$\Rightarrow x = \frac{-12}{2}$$

$$\Rightarrow x = -6$$

$$\text{Ans: } x = -6$$

10. If $\frac{x}{3} - 110 = -183$, then find x . [3]

$$\frac{x}{3} - 110 = -183$$

$$\Rightarrow \frac{x}{3} = -183 + 110$$

$$\Rightarrow \frac{x}{3} = -73$$

$$\Rightarrow x = -73 \times 3$$

$$\Rightarrow x = -219$$

$$\text{Ans: } x = -219$$

11. Solve: (i) $\frac{5x}{3} + 2 = -28$ (ii) $\frac{3x}{8} - 22 = 14$ [5]

$$(i) \frac{5x}{3} + 2 = -28$$

$$\Rightarrow \frac{5x}{3} = -28 - 2$$

$$\Rightarrow \frac{5x}{3} = -30$$

$$\Rightarrow 5x = -30 \times 3$$

$$\Rightarrow 5x = -90$$

$$\Rightarrow x = \frac{-90}{5}$$

$$\Rightarrow x = -18$$

$$(ii) \frac{3x}{8} - 22 = 14$$

$$\Rightarrow \frac{3x}{8} = 14 + 22$$

$$\Rightarrow \frac{3x}{8} = 36$$

$$\Rightarrow 3x = 36 \times 8$$

$$\Rightarrow 3x = 288$$

$$\Rightarrow x = \frac{288}{3}$$

$$\Rightarrow x = 96$$

Ans: (i) $x = -18$, (ii) $x = 96$

12. Solve $x + 5 = -31 - x$. [2]

$$x + 5 = -31 - x$$

$$\Rightarrow x + x = -31 - 5$$

$$\Rightarrow 2x = -36$$

$$\Rightarrow x = \frac{-36}{2}$$

$$\Rightarrow x = -18$$

Ans: $x = -18$

13. If $9x + 5 = 122 - 4x$, then find x . [3]

$$9x + 5 = 122 - 4x$$

$$\Rightarrow 9x + 4x = 122 - 5$$

$$\Rightarrow 13x = 117$$

$$\Rightarrow x = \frac{117}{13}$$

$$\Rightarrow x = 9$$

Ans: $x = 9$

14. Find x if $7x + 26 + 6x = 38 + 9x$. [3]

$$7x + 26 + 6x = 38 + 9x$$

$$\Rightarrow 13x + 26 = 38 + 9x$$

$$\Rightarrow 13x - 9x = 38 - 26$$

$$\Rightarrow 4x = 12$$

$$\Rightarrow x = \frac{12}{4}$$

$$\Rightarrow x = 3$$

Ans: $x = 3$

15. If $57 - 8x = -127$, then find x . [2]

$$57 - 8x = -127$$

$$\Rightarrow -8x = -127 - 57$$

$$\Rightarrow -8x = -184$$

$$\Rightarrow x = \frac{-184}{-8}$$

$$(- \div - = +)$$

$$\Rightarrow x = 23$$

Ans: $x = 23$

16. Solve: (i) $2x + 24 = -171 + 3x$ (ii) $-8x + 36 - 6x = 148$ [5]

$$(i) \ 2x + 24 = -171 + 3x$$

$$\Rightarrow 2x - 3x = -171 - 24$$

$$\Rightarrow (-1)x = -195$$

$$\Rightarrow x = \frac{-195}{-1}$$

$$(- \div - = +)$$

$$\Rightarrow x = 195$$

$$(ii) \ -8x + 36 - 6x = 148$$

$$\Rightarrow -14x + 36 = 148$$

$$\Rightarrow -14x = 148 - 36$$

$$\Rightarrow -14x = 112$$

$$\Rightarrow x = \frac{112}{-14}$$

$$(+ \div - = -)$$

$$\Rightarrow x = -8$$

Ans: (i) $x = 195$, (ii) $x = -8$

17. The sum of two integers is -127 . If one of them is 15, then find the other. [2]

Let the other integer be x .

$$x + 15 = -127$$

$$\Rightarrow x = -127 - 15$$

$$\Rightarrow x = -142$$

Ans: -142

18. What number should be added to -62 to get 82? [2]

Let the number be x .

$$-62 + x = 82$$

$$\Rightarrow x = 82 - (-62)$$

$$\Rightarrow x = 82 + 62$$

$$\Rightarrow x = 144$$

Ans: 144

19. What number should be subtracted from -166 to get 172 ? [3]

Let the number be x .

$$-166 - x = 172$$

$$\Rightarrow -x = 172 + 166$$

$$\Rightarrow -x = 338$$

$$\Rightarrow x = -338$$

Ans: -338

20. (i) The product of two integers is 960 . If one of them is -15 , then find the other. (ii) The difference of two integers is 71 . If the larger of them is -90 , find the smaller. [5]

(i) Let the other integer be x .

$$x \times (-15) = 960$$

$$\Rightarrow x = \frac{960}{-15}$$

Long division: $96 \div 15 = 6$, remainder 6 ; $60 \div 15 = 4$, remainder 0

$$(+ \div - = -)$$

$$\Rightarrow x = -64$$

(ii) Let the smaller integer be x .

Larger $-$ smaller $=$ difference

$$-90 - x = 71$$

$$\Rightarrow -x = 71 + 90$$

$$\Rightarrow -x = 161$$

$$\Rightarrow x = -161$$

Ans: (i) -64 , (ii) -161
