

Simple Equations (on Integers)

Question Paper, Set 04

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. If $x + 74 = 8$, then find x . | [1 mark] |
| 2. Solve $x - 6 = 72$. | [1 mark] |
| 3. Solve $x \times 4 = 312$. | [1 mark] |
| 4. Solve $\frac{x}{9} = 78$. | [1 mark] |
| 5. Solve: (i) $x + 82 = -70$ (ii) $x - 64 = -57$ (iii) $x \times 5 = 195$ (iv) $\frac{x}{26} = 834$ | [5 marks] |
| 6. Find x if $x - 581 = -803$. | [1 mark] |
| 7. Find x if $x \times 13 = 2665$. | [2 marks] |
| 8. Solve $\frac{x}{-3} = 58$. | [1 mark] |
| 9. If $4x - 81 = -185$, then find x . | [2 marks] |
| 10. If $\frac{x}{5} - 32 = 65$, then find x . | [3 marks] |
| 11. Solve: (i) $\frac{9x}{8} + 24 = -30$ (ii) $\frac{5x}{9} - 37 = -27$ | [5 marks] |
| 12. Solve $x + 5 = 45 - x$. | [2 marks] |
| 13. Solve $7x + 25 = 157 - 5x$. | [3 marks] |
| 14. Solve $4x - 13 + 6x = 17 + 5x$. | [3 marks] |
| 15. Find x if $60 - 5x = 100$. | [2 marks] |
| 16. Solve: (i) $3x + 115 = 189 + 5x$ (ii) $-4x + 30 - 13x = 149$ | [5 marks] |
| 17. The sum of two integers is -898 . If one of them is -319 , then find the other. | [2 marks] |
| 18. What number should be added to 229 to get 194? | [2 marks] |
| 19. What number should be subtracted from -144 to get 25? | [3 marks] |

- 20.** (i) The product of two integers is 1925. If one of them is -25 , then find the other. (ii) The difference of two integers is 33. If the smaller of them is 64, find the larger. [5 marks]
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Key sheet

Q	Answer
1	$x = -66$
2	$x = 78$
3	$x = 78$
4	$x = 702$
5	(i) $x = -152$, (ii) $x = 7$, (iii) $x = 39$, (iv) $x = 21684$
6	$x = -222$
7	$x = 205$
8	$x = -174$
9	$x = -26$
10	$x = 485$
11	(i) $x = -48$, (ii) $x = 18$
12	$x = 20$
13	$x = 11$
14	$x = 6$
15	$x = -8$
16	(i) $x = -37$, (ii) $x = -7$
17	-579
18	-35
19	-169
20	(i) -77 , (ii) 97

Solutions

1. If $x + 74 = 8$, then find x . [1]

$$\begin{aligned}x + 74 &= 8 \\ \Rightarrow x &= 8 - 74 \\ \Rightarrow x &= -66 \\ \text{Ans: } x &= -66\end{aligned}$$

2. Solve $x - 6 = 72$. [1]

$$\begin{aligned}x - 6 &= 72 \\ \Rightarrow x &= 72 + 6 \\ \Rightarrow x &= 78 \\ \text{Ans: } x &= 78\end{aligned}$$

3. Solve $x \times 4 = 312$. [1]

$$\begin{aligned}x \times 4 &= 312 \\ \Rightarrow x &= \frac{312}{4} \\ \Rightarrow x &= 78 \\ \text{Ans: } x &= 78\end{aligned}$$

4. Solve $\frac{x}{9} = 78$. [1]

$$\begin{aligned}\frac{x}{9} &= 78 \\ \Rightarrow x &= 78 \times 9 \\ \Rightarrow x &= 702 \\ \text{Ans: } x &= 702\end{aligned}$$

5. Solve: (i) $x + 82 = -70$ (ii) $x - 64 = -57$ (iii) $x \times 5 = 195$ (iv) $\frac{x}{26} = 834$ [5]

$$\begin{aligned}\text{(i) } x + 82 &= -70 \\ \Rightarrow x &= -70 - 82 \\ \Rightarrow x &= -152 \\ \text{(ii) } x - 64 &= -57 \\ \Rightarrow x &= -57 + 64 \\ \Rightarrow x &= 7 \\ \text{(iii) } x \times 5 &= 195 \\ \Rightarrow x &= \frac{195}{5} \\ \Rightarrow x &= 39 \\ \text{(iv) } \frac{x}{26} &= 834 \\ \Rightarrow x &= 834 \times 26 \\ \Rightarrow x &= 21684\end{aligned}$$

$$\text{Ans: (i) } x = -152, \text{ (ii) } x = 7, \text{ (iii) } x = 39, \text{ (iv) } x = 21684$$

6. Find x if $x - 581 = -803$. [1]

$$x - 581 = -803$$

$$\Rightarrow x = -803 + 581$$

Column subtraction: $803 - 581 = 222$; the bigger number is negative, so x is negative

$$\Rightarrow x = -222$$

Ans: $x = -222$

7. Find x if $x \times 13 = 2665$. [2]

$$x \times 13 = 2665$$

$$\Rightarrow x = \frac{2665}{13}$$

Long division: $26 \div 13 = 2$, remainder 0; $6 \div 13 = 0$, remainder 6; $65 \div 13 = 5$, remainder 0

$$\Rightarrow x = 205$$

Ans: $x = 205$

8. Solve $\frac{x}{-3} = 58$. [1]

$$\frac{x}{-3} = 58$$

$$\Rightarrow x = 58 \times (-3)$$

$$+ \times - = -$$

$$\Rightarrow x = -174$$

Ans: $x = -174$

9. If $4x - 81 = -185$, then find x . [2]

$$4x - 81 = -185$$

$$\Rightarrow 4x = -185 + 81$$

$$\Rightarrow 4x = -104$$

$$\Rightarrow x = \frac{-104}{4}$$

$$\Rightarrow x = -26$$

Ans: $x = -26$

10. If $\frac{x}{5} - 32 = 65$, then find x . [3]

$$\frac{x}{5} - 32 = 65$$

$$\Rightarrow \frac{x}{5} = 65 + 32$$

$$\Rightarrow \frac{x}{5} = 97$$

$$\Rightarrow x = 97 \times 5$$

$$\Rightarrow x = 485$$

Ans: $x = 485$

11. Solve: (i) $\frac{9x}{8} + 24 = -30$ (ii) $\frac{5x}{9} - 37 = -27$ [5]

$$(i) \frac{9x}{8} + 24 = -30$$

$$\Rightarrow \frac{9x}{8} = -30 - 24$$

$$\Rightarrow \frac{9x}{8} = -54$$

$$\Rightarrow 9x = -54 \times 8$$

$$\Rightarrow 9x = -432$$

$$\Rightarrow x = \frac{-432}{9}$$

$$\Rightarrow x = -48$$

$$(ii) \frac{5x}{9} - 37 = -27$$

$$\Rightarrow \frac{5x}{9} = -27 + 37$$

$$\Rightarrow \frac{5x}{9} = 10$$

$$\Rightarrow 5x = 10 \times 9$$

$$\Rightarrow 5x = 90$$

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

$$\Rightarrow x = 18$$

Ans: (i) $x = -48$, (ii) $x = 18$

12. Solve $x + 5 = 45 - x$. [2]

$$x + 5 = 45 - x$$

$$\Rightarrow x + x = 45 - 5$$

$$\Rightarrow 2x = 40$$

$$\Rightarrow x = \frac{40}{2}$$

$$\Rightarrow x = 20$$

Ans: $x = 20$

13. Solve $7x + 25 = 157 - 5x$. [3]

$$7x + 25 = 157 - 5x$$

$$\Rightarrow 7x + 5x = 157 - 25$$

$$\Rightarrow 12x = 132$$

$$\Rightarrow x = \frac{132}{12}$$

$$\Rightarrow x = 11$$

Ans: $x = 11$

14. Solve $4x - 13 + 6x = 17 + 5x$. [3]

$$4x - 13 + 6x = 17 + 5x$$

$$\Rightarrow 10x - 13 = 17 + 5x$$

$$\Rightarrow 10x - 5x = 17 + 13$$

$$\Rightarrow 5x = 30$$

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

$$\Rightarrow x = 6$$

Ans: $x = 6$

15. Find x if $60 - 5x = 100$. [2]

$$60 - 5x = 100$$

$$\Rightarrow -5x = 100 - 60$$

$$\Rightarrow -5x = 40$$

$$\Rightarrow x = \frac{40}{-5}$$

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

$$\Rightarrow x = -8$$

Ans: $x = -8$

16. Solve: (i) $3x + 115 = 189 + 5x$ (ii) $-4x + 30 - 13x = 149$ [5]

$$(i) \ 3x + 115 = 189 + 5x$$

$$\Rightarrow 3x - 5x = 189 - 115$$

$$\Rightarrow -2x = 74$$

$$\Rightarrow x = \frac{74}{-2}$$

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

$$\Rightarrow x = -37$$

$$(ii) \ -4x + 30 - 13x = 149$$

$$\Rightarrow -17x + 30 = 149$$

$$\Rightarrow -17x = 149 - 30$$

$$\Rightarrow -17x = 119$$

$$\Rightarrow x = \frac{119}{-17}$$

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

$$\Rightarrow x = -7$$

Ans: (i) $x = -37$, (ii) $x = -7$

17. The sum of two integers is -898 . If one of them is -319 , then find the other. [2]

Let the other integer be x .

$$x + (-319) = -898$$

$$\Rightarrow x = -898 - (-319)$$

$$\Rightarrow x = -898 + 319$$

$$\Rightarrow x = -579$$

Ans: -579

18. What number should be added to 229 to get 194? [2]

Let the number be x .

$$229 + x = 194$$

$$\Rightarrow x = 194 - 229$$

$$\Rightarrow x = -35$$

Ans: -35

19. What number should be subtracted from -144 to get 25 ? [3]

Let the number be x .

$$-144 - x = 25$$

$$\Rightarrow -x = 25 + 144$$

$$\Rightarrow -x = 169$$

$$\Rightarrow x = -169$$

Ans: -169

20. (i) The product of two integers is 1925 . If one of them is -25 , then find the other. (ii) The difference of two integers is 33 . If the smaller of them is 64 , find the larger. [5]

(i) Let the other integer be x .

$$x \times (-25) = 1925$$

$$\Rightarrow x = \frac{1925}{-25}$$

Long division: $192 \div 25 = 7$, remainder 17 ; $175 \div 25 = 7$, remainder 0

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

$$\Rightarrow x = -77$$

(ii) Let the larger integer be x .

Larger $-$ smaller $=$ difference

$$x - 64 = 33$$

$$\Rightarrow x = 33 + 64$$

$$\Rightarrow x = 97$$

Ans: (i) -77 , (ii) 97
