EXPRESSWALA ACADEMY

Simple Equations (on Integers)

Question Paper, Set 03

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.

1. Find x if $x + 48 = -41$. [1 mark]

2. Solve $x - 12 = -64$. [1 mark]

3. Solve $x \times 4 = 340$. [1 mark]

4. Find x if $\frac{x}{3} = 49$. [1 mark]

5. Solve: (i) $x + 19 = -51$ (ii) $x - 45 = -36$ (iii) $x \times 6 = 594$ (iv) $\frac{x}{19} = 798$ [5 marks]

6. If $x + 55904 = 154551$, then find x. [1 mark]

7. If $x \times 22 = 19998$, then find x. [2 marks]

8. Find x if $\frac{x}{-2} = 31$. [1 mark]

9. Solve $5x - 95 = 95$. [2 marks]

10. If $\frac{x}{3} + 25 = 39$, then find x. [3 marks]

11. Solve: (i) $\frac{8x}{9} + 22 = 78$ (ii) $\frac{3x}{4} - 24 = -3$ [5 marks]

12. Find x if $x + 31 = -23 - x$. [2 marks]

13. Find x if $6x + 24 = -106 - 7x$. [3 marks]

14. Find x if $7x + 30 + 2x = 54 + 6x$. [3 marks]

15. If $55 - 6x = 31$, then find x. [2 marks]

16. Solve: (i) $7x - 62 = -86 + 9x$ (ii) $-12x + 11 - 5x = 130$ [5 marks]

17. The sum of two integers is 554. If one of them is 956, then find the other. [2 marks]

18. What number should be added to 112 to get -152? [2 marks]

19. What number should be subtracted from 142 to get 194? [3 marks]

20. (i) The product of two integers is -936. If one of them is -18, then find the other. (ii) The difference of two integers is 74. If the larger of them is -104, find the smaller. [5 marks]

Key sheet

Q	Answer
1	$x = -89$
2	$x = -52$
3	$x = 85$
4	$x = 147$
5	(i) $x = -70$, (ii) $x = 9$, (iii) $x = 99$, (iv) $x = 15162$
6	$x = 98647$
7	$x = 909$
8	$x = -62$
9	$x = 38$
10	$x = 42$
11	(i) $x = 63$, (ii) $x = 28$
12	$x = -27$
13	$x = -10$
14	$x = 8$
15	$x = 4$
16	(i) $x = 12$, (ii) $x = -7$
17	-402
18	-264
19	-52
20	(i) 52, (ii) -178

Solutions

1. Find x if $x + 48 = -41$. [1]

$x + 48 = -41$

$\Rightarrow x = -41 - 48$

$\Rightarrow x = -89$

Ans: $x = -89$

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2. Solve $x - 12 = -64$. [1]

$x - 12 = -64$

$\Rightarrow x = -64 + 12$

$\Rightarrow x = -52$

Ans: $x = -52$

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3. Solve $x \times 4 = 340$. [1]

$x \times 4 = 340$

$\Rightarrow x = \frac{340}{4}$

$\Rightarrow x = 85$

Ans: $x = 85$

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4. Find x if $\frac{x}{3} = 49$. [1]

$\frac{x}{3} = 49$

$\Rightarrow x = 49 \times 3$

$\Rightarrow x = 147$

Ans: $x = 147$

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5. Solve: (i) $x + 19 = -51$ (ii) $x - 45 = -36$ (iii) $x \times 6 = 594$ (iv) $\frac{x}{19} = 798$ [5]

(i) $x + 19 = -51$

$\Rightarrow x = -51 - 19$

$\Rightarrow x = -70$

(ii) $x - 45 = -36$

$\Rightarrow x = -36 + 45$

$\Rightarrow x = 9$

(iii) $x \times 6 = 594$

$\Rightarrow x = \frac{594}{6}$

$\Rightarrow x = 99$

(iv) $\frac{x}{19} = 798$

$\Rightarrow x = 798 \times 19$

$\Rightarrow x = 15162$

Ans: (i) $x = -70$, (ii) $x = 9$, (iii) $x = 99$, (iv) $x = 15162$

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6. If $x + 55904 = 154551$, then find x. [1]

$x + 55904 = 154551$

$\Rightarrow x = 154551 - 55904$

Column subtraction: $154551 - 55904 = 98647$

$\Rightarrow x = 98647$

Ans: $x = 98647$

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7. If $x \times 22 = 19998$, then find x. [2]

$x \times 22 = 19998$

$\Rightarrow x = \frac{19998}{22}$

Long division: $199 \div 22 = 9$, remainder 1; $19 \div 22 = 0$, remainder 19; $198 \div 22 = 9$, remainder 0

$\Rightarrow x = 909$

Ans: $x = 909$

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8. Find x if $\frac{x}{-2} = 31$. [1]

$\frac{x}{-2} = 31$

$\Rightarrow x = 31 \times (-2)$

$+ \times - = -$

$\Rightarrow x = -62$

Ans: $x = -62$

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9. Solve $5x - 95 = 95$. [2]

$5x - 95 = 95$

$\Rightarrow 5x = 95 + 95$

$\Rightarrow 5x = 190$

$\Rightarrow x = \frac{190}{5}$

$\Rightarrow x = 38$

Ans: $x = 38$

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10. If $\frac{x}{3} + 25 = 39$, then find x. [3]

$\frac{x}{3} + 25 = 39$

$\Rightarrow \frac{x}{3} = 39 - 25$

$\Rightarrow \frac{x}{3} = 14$

$\Rightarrow x = 14 \times 3$

$\Rightarrow x = 42$

Ans: $x = 42$

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11. Solve: (i) $\frac{8x}{9} + 22 = 78$ (ii) $\frac{3x}{4} - 24 = -3$ [5]

(i) $\frac{8x}{9} + 22 = 78$

$\Rightarrow \frac{8x}{9} = 78 - 22$

$\Rightarrow \frac{8x}{9} = 56$

$\Rightarrow 8x = 56 \times 9$

$\Rightarrow 8x = 504$

$\Rightarrow x = \frac{504}{8}$

$\Rightarrow x = 63$

(ii) $\frac{3x}{4} - 24 = -3$

$\Rightarrow \frac{3x}{4} = -3 + 24$

$\Rightarrow \frac{3x}{4} = 21$

$\Rightarrow 3x = 21 \times 4$

$\Rightarrow 3x = 84$

$\Rightarrow x = \frac{84}{3}$

$\Rightarrow x = 28$

Ans: **(i)** $x = 63$, **(ii)** $x = 28$

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12. Find x if $x + 31 = -23 - x$. [2]

$x + 31 = -23 - x$

$\Rightarrow x + x = -23 - 31$

$\Rightarrow 2x = -54$

$\Rightarrow x = \frac{-54}{2}$

$\Rightarrow x = -27$

Ans: $x = -27$

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13. Find x if $6x + 24 = -106 - 7x$. [3]

$6x + 24 = -106 - 7x$

$\Rightarrow 6x + 7x = -106 - 24$

$\Rightarrow 13x = -130$

$\Rightarrow x = \frac{-130}{13}$

$\Rightarrow x = -10$

Ans: $x = -10$

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14. Find x if $7x + 30 + 2x = 54 + 6x$. [3]

$7x + 30 + 2x = 54 + 6x$

$\Rightarrow 9x + 30 = 54 + 6x$

$\Rightarrow 9x - 6x = 54 - 30$

$\Rightarrow 3x = 24$

$\Rightarrow x = \frac{24}{3}$

$\Rightarrow x = 8$

Ans: $x = 8$

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15. If $55 - 6x = 31$, then find x. [2]

$55 - 6x = 31$

$\Rightarrow -6x = 31 - 55$

$\Rightarrow -6x = -24$

$\Rightarrow x = \frac{-24}{-6}$

$(- \div - = +)$

$\Rightarrow x = 4$

Ans: $x = 4$

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16. Solve: (i) $7x - 62 = -86 + 9x$ (ii) $-12x + 11 - 5x = 130$ [5]

(i) $7x - 62 = -86 + 9x$

$\Rightarrow 7x - 9x = -86 + 62$

$\Rightarrow -2x = -24$

$\Rightarrow x = \frac{-24}{-2}$

$(- \div - = +)$

$\Rightarrow x = 12$

(ii) $-12x + 11 - 5x = 130$

$\Rightarrow -17x + 11 = 130$

$\Rightarrow -17x = 130 - 11$

$\Rightarrow -17x = 119$

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

$(+ \div - = -)$

$\Rightarrow x = -7$

Ans: (i) $x = 12$**, (ii)** $x = -7$

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17. The sum of two integers is 554. If one of them is 956, then find the other. [2]

Let the other integer be x.

$x + 956 = 554$

$\Rightarrow x = 554 - 956$

$\Rightarrow x = -402$

Ans: -402

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18. What number should be added to 112 to get -152? [2]

Let the number be x.

$112 + x = -152$

$\Rightarrow x = -152 - 112$

$\Rightarrow x = -264$

Ans: -264

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19. What number should be subtracted from 142 to get 194? [3]

Let the number be x.

$142 - x = 194$

$\Rightarrow -x = 194 - 142$

$\Rightarrow -x = 52$

$\Rightarrow x = -52$

Ans: -52

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20. (i) The product of two integers is -936. If one of them is -18, then find the other. (ii) The difference of two integers is 74. If the larger of them is -104, find the smaller. [5]

(i) Let the other integer be x.

$x \times (-18) = -936$

$\Rightarrow x = \frac{-936}{-18}$

Long division: $93 \div 18 = 5$, remainder 3; $36 \div 18 = 2$, remainder 0

$(- \div - = +)$

$\Rightarrow x = 52$

(ii) Let the smaller integer be x.

Larger $-$ smaller $=$ difference

$-104 - x = 74$

$\Rightarrow -x = 74 + 104$

$\Rightarrow -x = 178$

$\Rightarrow x = -178$

Ans: (i) 52**, (ii)** -178