EXPRESSWALA ACADEMY

Integers

Question Paper, Set 05

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. Start at 7 on the number line and make 20 jumps of 1 to the left. Where do you land? [1 mark]

2. How many integers are there between -39 and 11? [1 mark]

3. Add -55 and -56. [1 mark]

4. Find the value of $-56 + 47$. [1 mark]

5. At 5 am the temperature in Gangtok was -3°C. By noon it had risen by 16°C. What was the temperature at noon? [2 marks]

6. Find $-863 - 589$. [2 marks]

7. Find: (i) $-87 + 964$ (ii) $9117 + 4064$ (iii) $-829 + 789$ (iv) $-5489 - 53386$ (v) $793 - 6176$ [5 marks]

8. Find $1109 - 751$. [2 marks]

9. Find $-1016 + 627$ by counting down from 1016 to 700 and then from 700 to 627. [3 marks]

10. Find $-753 + 428$. [2 marks]

11. Work out $482 + 958 - 47 - 206$. [3 marks]

12. Simplify $-319 + 36 - 868 + 278 + 955 - 19$. [5 marks]

13. Simplify -16×-22. [1 mark]

14. A diver goes down 5 m every minute. Taking going down as negative, write the change in her position after 11 minutes as an integer. [2 marks]

15. Find -134×26. [3 marks]

16. Find: (i) -54×-18 (ii) 74×-339 (iii) -122×44 [5 marks]

17. Evaluate $\frac{-63}{-9}$. [1 mark]

18. Evaluate $\frac{7392}{-8}$. [2 marks]

19. Find: (i) $\frac{-32168}{-8}$ (ii) $\frac{728172}{-2}$ [3 marks]

20. Find: (i) $7 - 75$ (ii) 7×-75 (iii) $-3 - 39$ (iv) -3×-39 (v) $\frac{-55345}{5}$ [5 marks]

Key sheet

Q	Answer
1	-13
2	49
3	-111
4	-9
5	13°C
6	-1452
7	(i) 877, (ii) 13181, (iii) -40, (iv) -58875, (v) -5383
8	358
9	-389
10	-325
11	1187
12	63
13	352
14	-55 m
15	-3484
16	(i) 972, (ii) -25086, (iii) -5368
17	7
18	-924
19	(i) 4021, (ii) -364086
20	(i) -68, (ii) -525, (iii) -42, (iv) 117, (v) -11069

Solutions

1. Start at 7 on the number line and make 20 jumps of 1 to the left. Where do you land? [1]

Jumps to the left subtract.

$7 - 20 = -(20 - 7) = -13$

Ans: -13

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2. How many integers are there between -39 and 11? [1]

From -38 to -1: 38 integers

0: 1 integer

From 1 to 10: 10 integers

Total $= 38 + 1 + 10 = 49$

Ans: 49

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3. Add -55 and -56. [1]

Adding -56 to -55 gives $-55 - 56$.

Both are negative: $-55 - 56 = -(55 + 56)$

$= -111$

Ans: -111

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4. Find the value of $-56 + 47$. [1]

The signs are different: subtract the smaller from the bigger and keep the sign of the bigger.

$-56 + 47 = -(56 - 47)$

$= -9$

Ans: -9

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5. At 5 am the temperature in Gangtok was $-3°$C. By noon it had risen by $16°$C. What was the temperature at noon? [2]

A rise is a $+$.

$-3 + 16 = +(16 - 3) = 13$

The temperature at noon was $13°$C.

Ans: $13°$**C**

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6. Find $-863 - 589$. [2]

Both are negative: add them and keep the $-$ sign.

$-863 - 589 = -(863 + 589)$

$= -1452$

Ans: -1452

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7. Find: (i) $-87 + 964$ (ii) $9117 + 4064$ (iii) $-829 + 789$ (iv) $-5489 - 53386$ (v) $793 - 6176$ [5]

(i) $-87 + 964 = +(964 - 87) = 877$

(ii) $9117 + 4064 = 13181$

(iii) $-829 + 789 = -(829 - 789) = -40$

(iv) $-5489 - 53386 = -(5489 + 53386) = -58875$

(v) $793 - 6176 = -(6176 - 793) = -5383$

Ans: (i) 877, **(ii)** 13181, **(iii)** -40, **(iv)** -58875, **(v)** -5383

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8. Find $1109 - 751$. [2]

Write the smaller number under the bigger one and subtract column by column, starting from the units.

Units: $9 - 1 = 8$

Tens: $10 - 5 = 5$ (borrow 1)

Hundreds: $10 - 7 = 3$ (borrow 1)

So $1109 - 751 = 358$

Ans: 358

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9. Find $-1016 + 627$ by counting down from 1016 to 700 and then from 700 to 627. [3]

Different signs and the bigger number 1016 is negative, so $-1016 + 627 = -(1016 - 627)$

Count down: $1016 \to 700$ is 316, and $700 \to 627$ is 73

$1016 - 627 = 316 + 73 = 389$

So $-1016 + 627 = -389$

Ans: -389

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10. Find $-753 + 428$. [2]

Different signs and the bigger number 753 is negative, so $-753 + 428 = -(753 - 428)$

Count down: $753 \to 500$ is 253, and $500 \to 428$ is 72

$753 - 428 = 253 + 72 = 325$

So $-753 + 428 = -325$

Ans: -325

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11. Work out $482 + 958 - 47 - 206$. [3]

Positive terms: $482 + 958 = 1440$

Negative terms: $47 + 206 = 253$

$482 + 958 - 47 - 206 = 1440 - 253$

$= 1187$

Ans: 1187

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12. Simplify $-319 + 36 - 868 + 278 + 955 - 19$. [5]

Positive terms: $36 + 278 + 955 = 1269$

Negative terms: $319 + 868 + 19 = 1206$

$-319 + 36 - 868 + 278 + 955 - 19 = 1269 - 1206$

$= 63$

Ans: 63

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13. Simplify -16×-22. [1]

$- \times - = +$

$-16 \times -22 = +(16 \times 22) = 352$

Ans: 352

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14. A diver goes down 5 m every minute. Taking going down as negative, write the change in her position after 11 minutes as an integer. [2]

Each step is -5, and there are 11 steps.

$-5 \times 11 = -(5 \times 11) = -55$

Her position changes by -55 m.

Ans: -55 **m**

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15. Find -134×26. [3]

Sign: $- \times + = -$

$134 \times 6 = 804$

$134 \times 20 = 2680$

$804 + 2680 = 3484$

So $-134 \times 26 = -3484$

Ans: -3484

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16. Find: (i) -54×-18 (ii) 74×-339 (iii) -122×44 [5]

(i) $- \times - = +$; $54 \times 8 = 432$, $54 \times 10 = 540$, $432 + 540 = 972$

So $-54 \times -18 = 972$

(ii) $+ \times - = -$; $339 \times 4 = 1356$, $339 \times 70 = 23730$, $1356 + 23730 = 25086$

So $74 \times -339 = -25086$

(iii) $- \times + = -$; $122 \times 4 = 488$, $122 \times 40 = 4880$, $488 + 4880 = 5368$

So $-122 \times 44 = -5368$

Ans: (i) 972**, (ii)** -25086**, (iii)** -5368

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17. Evaluate $\frac{-63}{-9}$. [1]

$\frac{-}{-} = +$

$63 \div 9 = 7$, so $\frac{-63}{-9} = 7$

Ans: 7

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18. Evaluate $\frac{7392}{-8}$. [2]

$\frac{+}{-} = -$

$73 \div 8 = 9$ r 1; $19 \div 8 = 2$ r 3; $32 \div 8 = 4$

$7392 \div 8 = 924$, so $\frac{7392}{-8} = -924$

Ans: -924

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19. Find: (i) $\frac{-32168}{-8}$ (ii) $\frac{728172}{-2}$ [3]

(i) $\frac{-}{-} = +$

$32 \div 8 = 4$; $1 \div 8 = 0$ r 1; $16 \div 8 = 2$; $8 \div 8 = 1$

$32168 \div 8 = 4021$, so $\frac{-32168}{-8} = 4021$

(ii) $\frac{+}{-} = -$

$7 \div 2 = 3$ r 1; $12 \div 2 = 6$; $8 \div 2 = 4$; $1 \div 2 = 0$ r 1; $17 \div 2 = 8$ r 1; $12 \div 2 = 6$

$728172 \div 2 = 364086$, so $\frac{728172}{-2} = -364086$

Ans: (i) 4021**, (ii)** -364086

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20. Find: (i) $7 - 75$ (ii) 7×-75 (iii) $-3 - 39$ (iv) -3×-39 (v) $\frac{-55345}{5}$ [5]

Addition uses the addition rule; multiplication and division use the sign rule.

(i) $7 - 75 = -(75 - 7) = -68$

(ii) $+ \times - = -$, $7 \times -75 = -525$

(iii) $-3 - 39 = -(3 + 39) = -42$

(iv) $- \times - = +$, $-3 \times -39 = 117$

(v) $\frac{-}{+} = -$; $5 \div 5 = 1$; $5 \div 5 = 1$; $3 \div 5 = 0$ r 3; $34 \div 5 = 6$ r 4; $45 \div 5 = 9$; so $\frac{-55345}{5} = -11069$

Ans: (i) -68**, (ii)** -525**, (iii)** -42**, (iv)** 117**, (v)** -11069