CBSE Board
Class VI Mathematics
Term I
Sample Paper 2

Time: 2 ½ hours Total Marks: 80

General Instructions:

1. **All** questions are **compulsory**.
2. **Section A** comprises of **12** questions carrying 1 mark each.
3. **Section B** comprises of **12** questions carrying 2 marks each.
4. **Section C** comprises of **8** questions carrying 3 marks each.
5. **Section D** comprises of **5** questions carrying 4 marks each.

Section A

(Questions 1 to 12 carry 1 mark each)

1. 47896304 _____ 47896340

A. >
B. <
C. is predecessor of
D. is successor of

2. To add 0 and 4 on number line

A. move 4 steps to the left of 0
B. move 4 steps to the right of 0
C. move 0 steps to the right of 1
D. move 0 steps to the left of 1

3. The estimation of the product of 52 and 188 is equal to

A. 9500
B. 20000
C. 9000
D. 10000

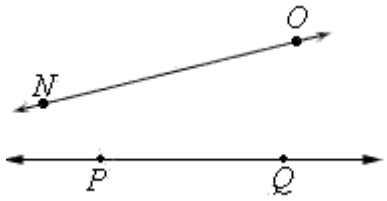
4. Prime factorisation of the number 36 is

A. 2 × 2 × 3 × 3
B. 2 × 2 × 9
C. 2 × 6 × 3
D. 4 × 3 × 3

5. 13 + (12 – 6 ×3) is _____

A. 8
B. 6
C. 5
D. 7

6. NO and PQ are



A. Parallel lines
B. Intersecting lines
C. Rays
D. Line segments

7. What comes just before 1000000?

A. 99999
B. 999999
C. 9999999
D. 10000001

8. The successor of −111 is

A. −11
B. −110
C. −10
D. −112

9. $\frac{15}{18}$ is equivalent to

A. $\frac{5}{6}$
B. $\frac{6}{5}$
C. $\frac{3}{5}$
D. $\frac{5}{3}$

10. Which of the following numbers is divisible by 3 but not by 6?

A. 138
B. 653
C. 432
D. 531

11. $\frac{1}{3}+\left(\frac{-1}{12}\right)=?$

A. 0
B. $\frac{1}{4}$
C. $\frac{-1}{9}$
D. $\frac{1}{9}$

12. How many pairs of adjacent angles does a quadrilateral have?

A. Two
B. Three
C. Four
D. Six

Section B

(Questions 13 to 24 carry 2 marks each)

13. Write the given numerals in words:

i. 707075
ii. 53618493

14. What are parallel lines? Does the distance between them vary over their length?

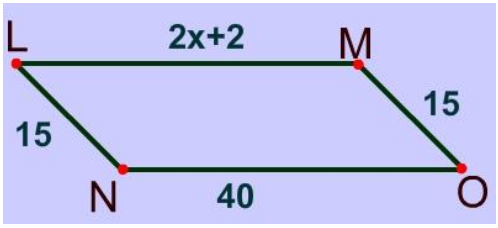
15. Write the opposite of each of the following:

a) Going 6 m to the East
b) A deposit of Rs 100
c) 10 km above sea level
d) Earning Rs 500

16. A village has a population of 13295 people. It increases by an average number of 400 people every year. In a recent survey, it was realised that the population of the village would increase by one less than the average number. What will be the population of village in the successive year assuming that nobody dies in the village in the considered years?

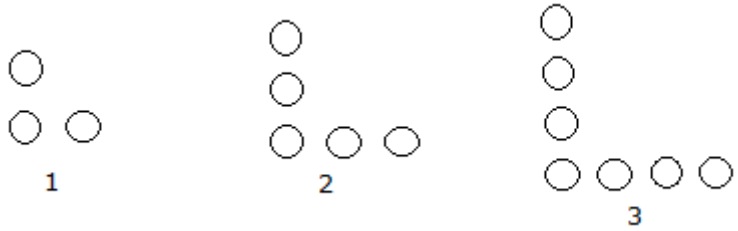
17. The volume of a box is found by multiplying its length l, width w and heighth. If the measure of the volume of a box is 455 cubic cm, what could its dimensions be?

18. What is the value of *x* in the following parallelogram?



19. Write seven consecutive composite numbers less than 100 and more than equal to 90.

20. Look at the following pattern:



How many circles will be there in the 100^{th} step?

21. Write the prime factors of 20570.

22. Anna is standing on a rock that is 7 feet above sea level. She jumps off the rock. She lands on another rock 3 feet below and then descends 2 feet down. How many feet did she descend in all?

23. Find the sum: (–13) + (–19) + (+15) + (–10).

24. Estimate the sum to nearest thousand: (21397 + 27807 + 42305)

Section C

(Questions 25 to 32 carry 3 marks each)

25. Arrange the following roman numerals in ascending order:
C, D, V, I, X, M

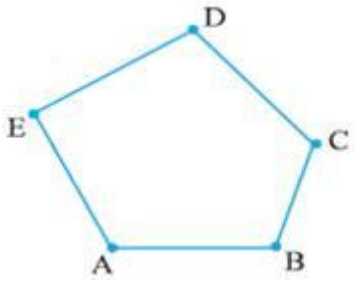
26. Three people are going round a circular field of 360 km circumference. They can travel 48 km, 60km and 72km in a day. When will they meet?

27. Convert the fractions $\frac{1}{2}$, $\frac{2}{3}$, $\frac{5}{6}$ and $\frac{4}{9}$ into like fractions

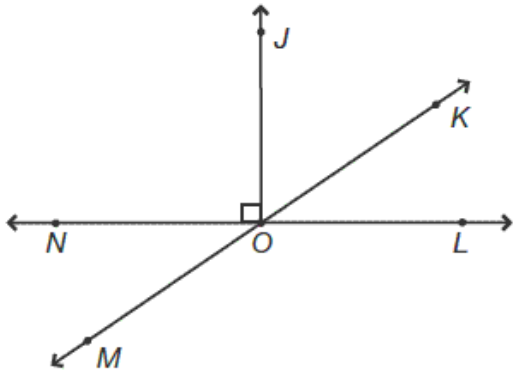
28. In New York, the temperature was -14°F in the morning. If the temperature dropped by 7°F, what is the temperature now?

29. A businessman is to receive Rs. 13550 and Rs. 26788 from two different sources. He has to pay Rs. 37000 to a supplier. Round off the money to nearest thousands and find whether he will be able to pay to his supplier with the money received.

30. Name the following polygon? How many pairs of adjacent sides are there in this polygon? Name them.



31. From the following figure, indentify the angles:



a. Name three acute angles.
b. Name three obtuse angles.
c. Name two straight angles.

32. Find the difference between the least and greatest prime factors of 33,660.

Section D

(Questions 33 to 37 carry 4 marks each)

33. Jenny had a pizza that was divided into 8 equal slices. She ate 3 of them. Danny has a pizza that is the same size, but his is divided into 4 equal slices. He ate 3 slices of his pizza. Who ate more pizza?

34. Solve the following in the most convenient manner using an appropriate property.

i. $(74 \times 126) - (74 \times 32) + (74 \times 16)$

ii. 1008×721

35. Simplify: $\overline{13+5}+\left[100 \div 10+\left\{15 \times 2\left(\overline{13-9} \div \overline{4-1}\right)\right\}\right]$.

36. What is the sum of:

a. −52, −36, 42, 8, −22 and 46

b. The largest 4-digit positive integer and smallest 3-digit negative integer?

c. Two integers between 2 and −5 that are inverses of each other.

37. Solve (−8 + 12 − 2) using number line.

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Sample Paper 2 – Solution

Time: 2 ½ hours Total Marks: 80

Section A

1. Correct answer: B

Arrange the numbers in place-value chart:

Cr	T L	L	T Th	Th	H	T	O
4	7	8	9	6	3	0	4
4	7	8	9	6	3	4	0

Clearly both numbers have 8 digits.
At crores, ten lakhs, lakhs, ten thousands, thousands and hundeds place both have the same digits i.e. 4, 7, 8, 9, 6, 3 respectively.

But at tens place, first number has 0 and second number has 4.
Clearly, $0 < 4$
Hence
$47896304 < 47896340$

2. Correct answer: B

To add 0 and 4 on number line, move 4 steps to the right of 0.

3. Correct answer: D

Estimate the product by rounding off 52 to its nearest tens and 188 to its nearest hundreds.
52 can be rounded off to its nearest tens as 50 and 188 can be rounded off to its nearest hundreds as 200.
So, the required estimation of the product is $50 \times 200 = 10000$

4. Correct answer: A

Since,

2	36
2	18
3	9
3	3
	1

Therefore, $36 = 2 \times 2 \times 3 \times 3$

5. Correct answer: D

$13 + (12 - 6 \times 3) = 13 + (12 - 18) = 13 - 6 = 7$

6. Correct answer: B

NO and PQ can be extended indefinitely on both sides, so they are lines. On extending, it can be seen that they would meet at a point. Hence, they are intersecting lines.

7. Correct answer: B

The number just before 1000000 is one less than 1000000.

The required number = 1000000 – 1 = 999999.

8. Correct answer: B

On a number line, –110 lies next to –111 on the right.

Therefore, the successor of –111 is –110.

9. Correct answer: A

The given fraction is $\frac{15}{18}$

Dividing the numerator and denominator by 3, we get

$\frac{15 \div 3}{18 \div 3} = \frac{5}{6}$

Thus,

$\frac{15}{18}$ is equivalent to $\frac{5}{6}$.

10. Correct answer: D

The numbers 138 and 432 are divisible by both 2 and 3 and hence by 6.

The number 653 is neither divisible by 3 nor by 2 and hence not by 6.

Now, consider the number 531.

Since, the sum of the digits of the number 531 is divisible by 3, so 531 is divisible by 3.

But it is not an even number, so it is not divisible by 2.

Thus, 531 is divisible by 3 but not by 6.

11. Correct answer: B

$$\frac{1}{3} + \left(\frac{-1}{12}\right) = \frac{4 + (-1)}{12} = \frac{3}{12} = \frac{1}{4}$$

12. Correct answer: C

Every quadrilateral has four pairs of adjacent angles.

Example: For the quadrilateral ABCD, the pairs of adjacent angles are

(i) $\angle A, \angle B$ (ii) $\angle B, \angle C$ (iii) $\angle C, \angle D$ (iv) $\angle D, \angle A$.

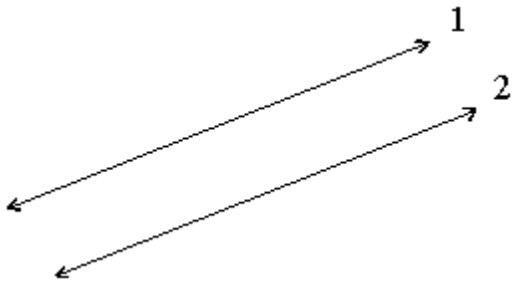
Section B

13.

	T Cr	Cr	T L	L	T Th	Th	H	T	O
(i)				7	0	7	0	7	5
(ii)		5	3	6	1	8	4	9	3

i. Seven lakh seven thousand seventy five.
ii. Five crore thirty-six lakh eighteen thousand four hundred ninety three.

14.



1. Two lines in the same plane which never intersect are called parallel lines.
2. Parallel lines remain the same distance apart over their entire length.

15.

i. Going 6 m to the West
ii. A withdrawal of Rs 100
iii. 10 km below sea level
iv. Spending Rs 500

16. Population of the village = 13295
Increase in population= Average growth - 1 = 399.
Population in the successive year = 13295 + 399 = 13694

17.

5	455
7	91
13	13
	1

Prime factorisation of 455 is 5 × 7 × 13
Therefore, the dimensions of the cuboid are 5 cm, 7 cm, 13 cm.

18. The opposite sides of a parallelogram are parallel and equal.
Therefore, LM = NO

$\Rightarrow 2x + 2 = 40$

$\Rightarrow 2x = 38$

$\Rightarrow x = \frac{38}{2}$

$\Rightarrow x = 19$

19. 90, 91, 92, 93, 94, 95, 96 are the required numbers.

20. Number of circles in step 1 = 3 = 1 × 2 + 1
Number of circles in step 2 = 5 = 2 × 2 + 1
Thus, we can observe that the number of circles is obtained by multiplying the step number by 2 and then adding 1.
Therefore, number of circles in the 100^{th} step = (100 × 2) + 1 = 201

21.

2	20570
5	10285
11	2057
11	187
17	17
	1

20570 = 2 × 5 × 11 × 11 × 17

22. Anna is 7 feet above sea level.
She jumps 3 feet down and walks another 2 feet down. Total distance travelled downwards = 3 + 2 = 5 feet.

23. (–13) + (–19) + (+15) + (–10)
= –13 – 19 + 15 – 10
= –13 – 19 – 10 + 15
= –42 + 15
= –27

24. 21397 can be estimated as 21000
27807 can be estimated as 28000
42305 can be estimated as 42000
On adding, we get 21000 + 28000 + 42000 = 91000

Section C

25. C stands for 100
D stands for 500
V stands for 5
I stands for 1
X stands for 10
M stands for 1000
In ascending order, the numbers can be arranged as
1 < 5 < 10 < 100 < 500 < 1000
Thus, the given roman numerals can be arranged in ascending order as
I, V, X, C, D, M

26. First we find the LCM of 48, 60, 72.
48 = 2 × 2 × 2 × 2 × 3
60 = 2 × 2 × 3 × 5
72 = 2 × 2 × 2 × 3 × 3
LCM = 2 × 2 × 2 × 2 × 3 × 3 × 5 = 720
Hence, they will meet after $\frac{720}{360}$ = 2 rounds.

27. The given fractions are $\frac{1}{2}$, $\frac{2}{3}$, $\frac{5}{6}$ and $\frac{4}{9}$.

2	2	3	6	9
3	1	3	3	9
	1	1	1	3

LCM of 2, 3, 6, 9 = (2 x 3 x 3) = 18
So, we convert each of the given fractions into an equivalent fraction with 18 as the denominator.
Thus, we have:

$\frac{1}{2} = \frac{1 \times 9}{2 \times 9} = \frac{9}{18}$

$\frac{2}{3} = \frac{2 \times 6}{3 \times 6} = \frac{12}{18}$

$\frac{5}{6} = \frac{5 \times 3}{6 \times 3} = \frac{15}{18}$

$\frac{4}{9} = \frac{4 \times 2}{9 \times 2} = \frac{8}{18}$

Hence, the like fractions are $\frac{9}{18}$, $\frac{12}{18}$, $\frac{15}{18}$, $\frac{8}{18}$.

28. Temperature in the morning = $-14^{o}F$
Drop in temperature is written as $-7^{o}F$.
Temperature at present = $-14^{o}F + (-7^{o}F)$
$= -14^{o}F - 7^{o}F$
$= -21^{o}F$

29. Rs. 13550 estimated to nearest thousands = Rs. 14000
Rs. 26788 estimated to nearest thousands = Rs. 27000
Total estimated money (to be received) = Rs. (14000 + 27000) = Rs. 41000
He has to pay Rs. 37000.
And 41000 > 37000
Therefore, he will be able to pay to his supplier with the money received.

30.

a) ABCDE is a pentagon.
b) There are 5 pairs of adjacent sides as (i) AB, BC (ii) BC, CD (iii) CD, ED (iv) ED, EA (v) EA, AB

31. The angles are as shown below:

(i) Acute angles ∠KOL; ∠JOK; ∠NOM

(ii) Obtuse angles ∠NOK; ∠MOJ; ∠MOL

(iii) Straight angles - ∠NOL; ∠MOK

32.

2	33660
2	16830
3	8415
3	2805
5	935
11	187
17	17
	1

The prime factorization of 33,660 is $2 \times 2 \times 3 \times 3 \times 5 \times 11 \times 17$.
The difference between 17 and 2 is 15.

Section D

33. Number of slices of Jenny's pizza = 8
Number of slices Jenny ate = 3
Fraction of pizza Jenny ate = $\frac{3}{8}$
Number of slices of Danny's pizza = 4
Number of slices Danny ate = 3
Fraction of pizza Danny ate = $\frac{3}{4}$
We convert each one of $\frac{3}{8}$ and $\frac{3}{4}$ into an equivalent fraction having 8 as denominator.
Now,
$\frac{3}{8} = \frac{3\times1}{8\times1} = \frac{3}{8}$ and $\frac{3}{4} = \frac{3\times2}{4\times2} = \frac{6}{8}$
Clearly, $\frac{3}{8} < \frac{6}{8}$
Hence, $\frac{3}{8} < \frac{3}{4}$
Therefore, Danny ate more pizza.

34.

(i) (74 × 126) – (74 × 32) + (74 × 16)
= 74 × (126 – 32 + 16)
= 74 × 110
= 8140

(ii) (1000 + 8) × 721
= 1000 × 721 + 8 × 721
= 721000 + 5768
= 726768

35.

$\overline{13+5}+\left[100\div10+\left\{15\times2\left(\overline{13-9}\div\overline{4-1}\right)\right\}\right]$
= 18 + [100 ÷ 10 + {15 × 2(4 ÷ 3)}]
= 18 + [100 ÷ 10 + {15 × 2 × $\frac{4}{3}$}]
= 18 + [100 ÷ 10 + {5 × 2 × 4}]
= 18 + [100 ÷ 10 + 40]
= 18 + [10 + 40]
= 18 + 50
= 68

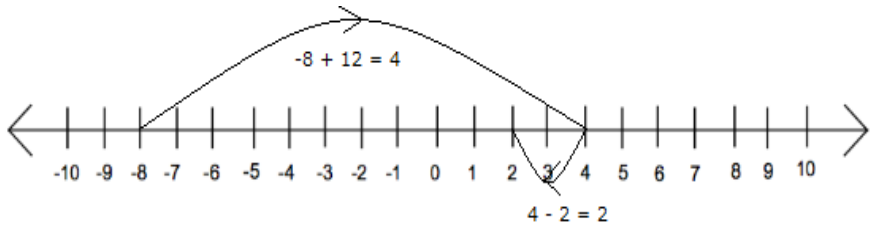
36.

(i) −52, −36, 42, 8, −22, 46
= (−52) + (−36) + 42 + 8 + (−22) + 46
= −(52 + 36 + 22) + (42 + 8 + 46)
= −110 + 96
= −14

(ii) The largest 4-digit positive integer and the smallest 3-digit negative integer are shown below:
The two integers are 9999 and -999, respectively.
9999 + (−999) = 9999 − 999 = 9000

(iii) Two integers between 2 and −5 that are inverses of each other.
The two integers are −1 and 1.
The sum of 1 and −1 is 0.

37. To solve using the number line start with −8, move 12 steps right and then back 2 steps as shown below:



So, we reach at 2; therefore, (−8 + 12 - 2) = 2

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Section A

1. Correct answer: B

Arrange the numbers in place-value chart:

Cr	T L	L	T Th	Th	H	T	O
4	7	8	9	6	3	0	4
4	7	8	9	6	3	4	0

Clearly both numbers have 8 digits.
At crores, ten lakhs, lakhs, ten thousands, thousands and hundeds place both have the same digits i.e. 4, 7, 8, 9, 6, 3 respectively.

But at tens place, first number has 0 and second number has 4.
Clearly, $0 < 4$
Hence
$47896304 < 47896340$

2. Correct answer: B

To add 0 and 4 on number line, move 4 steps to the right of 0.

3. Correct answer: D

Estimate the product by rounding off 52 to its nearest tens and 188 to its nearest hundreds.
52 can be rounded off to its nearest tens as 50 and 188 can be rounded off to its nearest hundreds as 200.
So, the required estimation of the product is $50 \times 200 = 10000$

4. Correct answer: A

Since,

2	36
2	18
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Therefore, $36 = 2 \times 2 \times 3 \times 3$

5. Correct answer: D

$13 + (12 - 6 \times 3) = 13 + (12 - 18) = 13 - 6 = 7$

6. Correct answer: B

NO and PQ can be extended indefinitely on both sides, so they are lines. On extending, it can be seen that they would meet at a point. Hence, they are intersecting lines.

7. Correct answer: B

The number just before 1000000 is one less than 1000000.

The required number = 1000000 – 1 = 999999.

8. Correct answer: B

On a number line, –110 lies next to –111 on the right.

Therefore, the successor of –111 is –110.

9. Correct answer: A

The given fraction is $\frac{15}{18}$

Dividing the numerator and denominator by 3, we get

$\frac{15 \div 3}{18 \div 3} = \frac{5}{6}$

Thus,

$\frac{15}{18}$ is equivalent to $\frac{5}{6}$.

10. Correct answer: D

The numbers 138 and 432 are divisible by both 2 and 3 and hence by 6.

The number 653 is neither divisible by 3 nor by 2 and hence not by 6.

Now, consider the number 531.

Since, the sum of the digits of the number 531 is divisible by 3, so 531 is divisible by 3.

But it is not an even number, so it is not divisible by 2.

Thus, 531 is divisible by 3 but not by 6.

11. Correct answer: B

$$\frac{1}{3} + \left(\frac{-1}{12}\right) = \frac{4 + (-1)}{12} = \frac{3}{12} = \frac{1}{4}$$

12. Correct answer: C

Every quadrilateral has four pairs of adjacent angles.

Example: For the quadrilateral ABCD, the pairs of adjacent angles are

(i) $\angle A, \angle B$ (ii) $\angle B, \angle C$ (iii) $\angle C, \angle D$ (iv) $\angle D, \angle A$.

Section B

13.

	T Cr	Cr	T L	L	T Th	Th	H	T	O
(i)				7	0	7	0	7	5
(ii)		5	3	6	1	8	4	9	3

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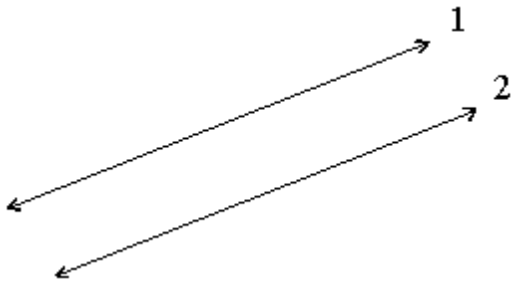

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Increase in population= Average growth - 1 = 399.
Population in the successive year = 13295 + 399 = 13694

17.

5	455
7	91
13	13
	1

Prime factorisation of 455 is 5 × 7 × 13
Therefore, the dimensions of the cuboid are 5 cm, 7 cm, 13 cm.

18. The opposite sides of a parallelogram are parallel and equal.
Therefore, LM = NO

$\Rightarrow 2x + 2 = 40$

$\Rightarrow 2x = 38$

$\Rightarrow x = \frac{38}{2}$

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19. 90, 91, 92, 93, 94, 95, 96 are the required numbers.

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Number of circles in step 2 = 5 = 2 × 2 + 1
Thus, we can observe that the number of circles is obtained by multiplying the step number by 2 and then adding 1.
Therefore, number of circles in the 100^{th} step = (100 × 2) + 1 = 201

21.

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20570 = 2 × 5 × 11 × 11 × 17

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She jumps 3 feet down and walks another 2 feet down. Total distance travelled downwards = 3 + 2 = 5 feet.

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Section C

25. C stands for 100
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2	2	3	6	9
3	1	3	3	9
	1	1	1	3

LCM of 2, 3, 6, 9 = (2 x 3 x 3) = 18
So, we convert each of the given fractions into an equivalent fraction with 18 as the denominator.
Thus, we have:

$\frac{1}{2} = \frac{1 \times 9}{2 \times 9} = \frac{9}{18}$

$\frac{2}{3} = \frac{2 \times 6}{3 \times 6} = \frac{12}{18}$

$\frac{5}{6} = \frac{5 \times 3}{6 \times 3} = \frac{15}{18}$

$\frac{4}{9} = \frac{4 \times 2}{9 \times 2} = \frac{8}{18}$

Hence, the like fractions are $\frac{9}{18}$, $\frac{12}{18}$, $\frac{15}{18}$, $\frac{8}{18}$.

28. Temperature in the morning = $-14^{o}F$
Drop in temperature is written as $-7^{o}F$.
Temperature at present = $-14^{o}F + (-7^{o}F)$
$= -14^{o}F - 7^{o}F$
$= -21^{o}F$

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Therefore, he will be able to pay to his supplier with the money received.

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a) ABCDE is a pentagon.
b) There are 5 pairs of adjacent sides as (i) AB, BC (ii) BC, CD (iii) CD, ED (iv) ED, EA (v) EA, AB

31. The angles are as shown below:

(i) Acute angles ∠KOL; ∠JOK; ∠NOM

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The prime factorization of 33,660 is $2 \times 2 \times 3 \times 3 \times 5 \times 11 \times 17$.
The difference between 17 and 2 is 15.

Section D

33. Number of slices of Jenny's pizza = 8
Number of slices Jenny ate = 3
Fraction of pizza Jenny ate = $\frac{3}{8}$
Number of slices of Danny's pizza = 4
Number of slices Danny ate = 3
Fraction of pizza Danny ate = $\frac{3}{4}$
We convert each one of $\frac{3}{8}$ and $\frac{3}{4}$ into an equivalent fraction having 8 as denominator.
Now,
$\frac{3}{8} = \frac{3\times1}{8\times1} = \frac{3}{8}$ and $\frac{3}{4} = \frac{3\times2}{4\times2} = \frac{6}{8}$
Clearly, $\frac{3}{8} < \frac{6}{8}$
Hence, $\frac{3}{8} < \frac{3}{4}$
Therefore, Danny ate more pizza.

34.

(i) (74 × 126) – (74 × 32) + (74 × 16)
= 74 × (126 – 32 + 16)
= 74 × 110
= 8140

(ii) (1000 + 8) × 721
= 1000 × 721 + 8 × 721
= 721000 + 5768
= 726768

35.

$\overline{13+5}+\left[100\div10+\left\{15\times2\left(\overline{13-9}\div\overline{4-1}\right)\right\}\right]$
= 18 + [100 ÷ 10 + {15 × 2(4 ÷ 3)}]
= 18 + [100 ÷ 10 + {15 × 2 × $\frac{4}{3}$}]
= 18 + [100 ÷ 10 + {5 × 2 × 4}]
= 18 + [100 ÷ 10 + 40]
= 18 + [10 + 40]
= 18 + 50
= 68

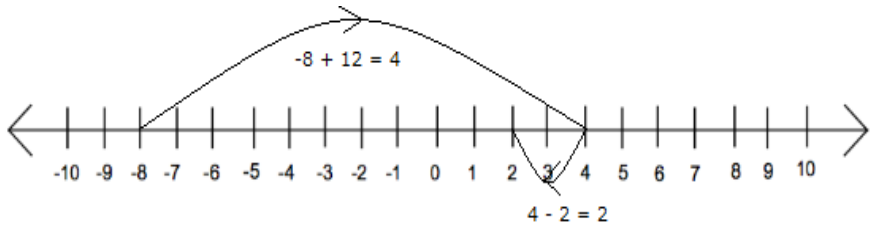
36.

(i) −52, −36, 42, 8, −22, 46
= (−52) + (−36) + 42 + 8 + (−22) + 46
= −(52 + 36 + 22) + (42 + 8 + 46)
= −110 + 96
= −14

(ii) The largest 4-digit positive integer and the smallest 3-digit negative integer are shown below:
The two integers are 9999 and -999, respectively.
9999 + (−999) = 9999 − 999 = 9000

(iii) Two integers between 2 and −5 that are inverses of each other.
The two integers are −1 and 1.
The sum of 1 and −1 is 0.

37. To solve using the number line start with −8, move 12 steps right and then back 2 steps as shown below:



So, we reach at 2; therefore, (−8 + 12 - 2) = 2