6. Dev, Kumar, Nilesh, Ankur and Pintu are standing facing to the North in a playground such as given below:

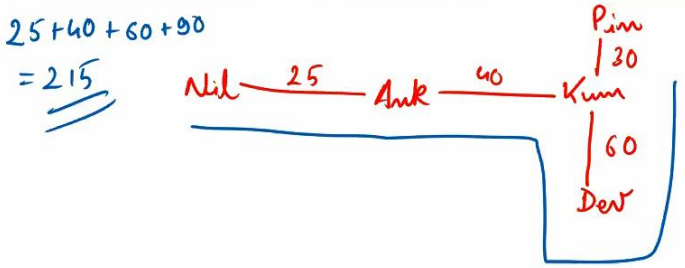
Kumar is at 40 m to the right of Ankur.
Dev is at 60 m in the south of Kumar.
Nilesh is at a distance of 25 m in the west of Ankur.
Pintu is at a distance of 90 m in the North of Dev.

i) Which one is in the North-East of the person who is to the left of Kumar?

A. Dev B. Nilesh C. Ankur D. Pintu

ii) If a boy starting from Nilesh, met Ankur and then Kumar and then Dev and then Pintu and whole the time he walked in a straight line, then how much total distance did he cover?

A. 215 m B. 155 m C. 245 m D. 185 m



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7. Harry went in search of Frodo from his home. He walked for 300 m towards East, then walked for 400 m to his left, from there 700 m towards his right and reached the school. There he didn't find Frodo. From school he started walking towards South, walked for 900 m, then took a right turn and walked for 300 m, and then he took a left turn and walked for 200 m. Finally, Harry found Frodo in a playground there.

i) In which direction is their home with respect to the playground?

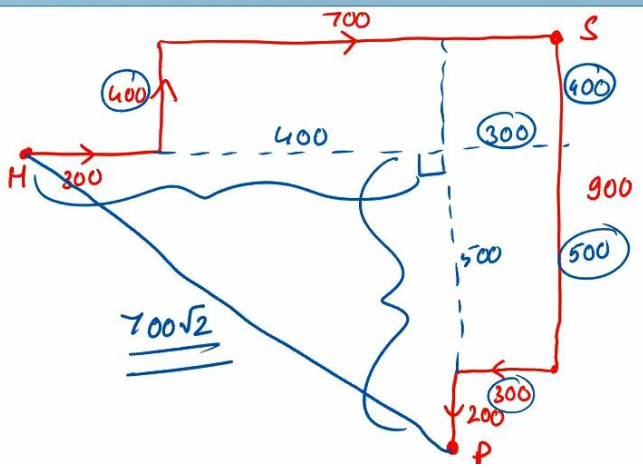
A. West B. North-West
C. North-East D. None of these

ii) In which direction is the school with respect to the home?

A. South-East B. South-West
C. North-East D. North-West

iii) How far is the playground from their home?

A. 700 m B. $700\sqrt{2}$ m
C. $500\sqrt{2}$ m D. 900 m



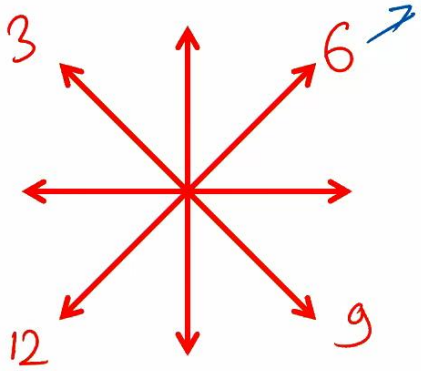
8. Hermione has kept her wrist-watch on her table in such a way that the hour hand points towards North-East and the minute hand towards South-West at 6 p.m.

i) Towards which direction is the hour hand pointing at 3:00 a.m.?

A. North-East
B. North-West
C. South-East
D. South-West

ii) Towards which directions are the hour hand and minute hand respectively pointing at 4:30 in the evening?

A. North, North-West
B. South, South-East
C. North, North-East
D. South-East, South



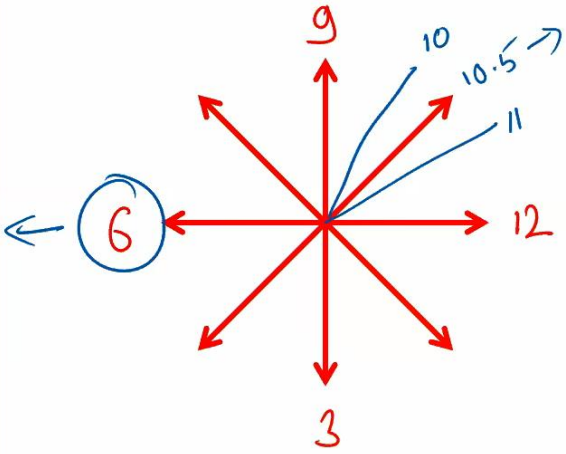
9) The time piece in Dumbledore's home is kept in such a way that the hour hand points towards North at 9:00 in the morning.

i) In which direction will the minute hand point at 6:15 in the next morning if the position of the clock is unchanged?

A. North
B. West
C. East
D. South

ii) In which directions will the minute hand and hour hand respectively point at 10:30 a.m.?

A. West, North-West
B. West, North-East
C. North-East, West
D. North-West, East



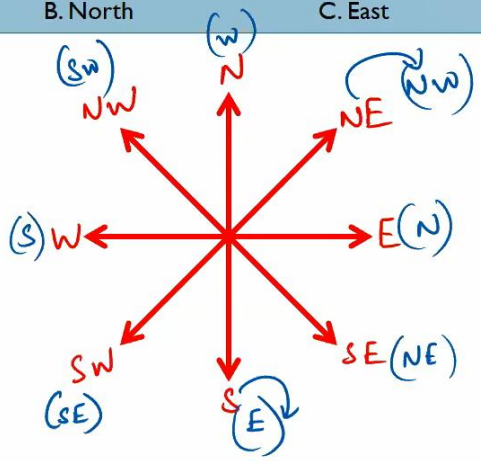
10) If South-West becomes South-East, West becomes South and so on then

i) _____ becomes East.

A. West B. North C. South D. North-West

ii) North-East becomes _____.

A. South-West B. North C. East D. North-West



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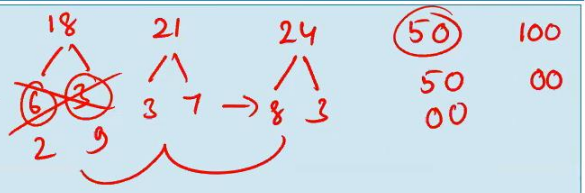
NUMBER SYSTEMS

- KOUSTAV

CONCEPT – DIVISIBILITY RULES

1 - All natural numbers.
2 - If last digit is 0, 2, 4, 6, or 8.
3 - If the sum of the digits is divisible by 3.
4 - If the last two digits are divisible by 4.
5 - If the last digit is 0 or 5.
6 - If the number is divisible by 2 and 3.
7 - Remove the last digit, double it and subtract from the rest of the number. Repeat if you need. If the difference is divisible by 7, the original number is divisible by 7.
8 - If last 3 digits are divisible by 8.
9 - If the sum of the digits is divisible by 9.
10 - If the last digit is 0.
11 - If the difference between the sum of the odd numbered digits and the sum of the even numbered digits is 0 or a multiple of 11.
12 - If the number is divisible by 3 and 4.



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1. Which one of the numbers is exactly divisible by 11?

A. 235641
B. 245642
C. 315624
D. 415624

2. Which one of the following numbers is divisible by 8 and 11 simultaneously?

A. 12496
B. 414206
C. 999000
D. 38400

3. Which of the following numbers is divisible by each one of 3, 7, 9 and 11?

A. 639
B. 2079
C. 37911
D. 7911

4. What is the value of M and N respectively if M39048458N is divisible by 8 and 11? M and N being single digit integers.

A. 7, 8 B. 8, 6 C. 6, 4 D. 5, 4

M 39048458N

÷8

A: 588 X

B: 586 X

6

M 3 9 0 4 8 4 5 8 4

÷11 31 − 20 = 11

5. What is the number of digits in the smallest number consisting of only 1's and 0's and divisible by 45?

A. 9 B. 10 C. 12 D. 45

÷45 ⇒ 58(9)

1111111110

6. $10^{25} - 7$ is divisible by _____.

A. 3 B. 9 C. 2 D. A & B

99----9(3)

7. How many factors does 48 have, excluding 1 and 48?

A. 12 B. 4 C. 8 D. 10

48 → 1, 2, 3, 4, 6, 8, 12, 16, 24, 48

2	48
2	24
2	12
2	6
	3

$48 = 2^4 \times 3^1$

$(4+1)(1+1)$

$5 \times 2 = 10$

$10 - 2 = 8$

2	360
2	180
2	90
3	45
3	15
	5

$360 = 2^3 \times 3^2 \times 5^1$

$(3+1)(2+1)(1+1)$

$4 \times 3 \times 2 = 24$

CONCEPT – REMAINDERS

$11 + 12 \rightarrow 10$, R → 3

$11 \times 12 \rightarrow 10$, R → 2

$12 \times 13 \times 14 \rightarrow 11$, R → 6

$15 \times 16 + 17 \rightarrow 12$, R → 17

1. On dividing a number by 5, we get 3 as remainder. What will be the remainder when the square of this number is divided by 5?

A. 0 B. 1 C. 2 D. 4

$\frac{3^2}{5} \Rightarrow 4$

$\frac{8^2}{5} \Rightarrow 4$

$\frac{13^2}{5} \Rightarrow 4$

2. On dividing a number by 774, we get 35 as remainder. What will be the remainder when the same number is divided by 18?

A. 14 B. 17 C. 18 D. 19

$774 \overline{)N} (Q$

$\underline{35}$

$\frac{35}{18} \Rightarrow 17$

$N = 774 \times Q + 35$

$N = 0 \times q + 17$

$\frac{N}{18}$

$R \rightarrow 0 \times q + 17$

$= 17$