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DIVISIBILITY RULES AND SHORTCUTS





POINTS TO REMEMBER

1 7(8)

Look at the last digit Is it 0,2,4,6, or 8? If it is then the number is divisible by 2

Number	Divisible?	Why?
456	Yes	The last digit is 6
68	Yes	The last digit is 8
25	No	The last digit is 5 (not a 2,4,6,or 8)
207	No	The last digit is 7 (not a 2,4,6,or 8)



POINTS TO REMEMBER

2079

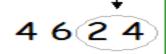
Add the digits 2 + 0 + 7 + 9 = 18

18 is a multiple of 3 So 2079 is divisible by 3

Number	Divisible?	Why?
405	Yes	4 + 0 + 5 = 9 (9 is a multiple of 3)
381	Yes	3 + 8 + 1 = 12 (12 is a multiple of 3)
928	No	9 + 2 + 8 = 19 (19 is <i>not</i> a multiple of 3)
4,616	No	4 + 6 + 1 + 6 = 17 (17 is <i>not</i> a multiple of 3)



POINTS TO REMEMBER



Look at the last two digits What number do you see? 24 24 is a multiple of 4 So 4624 is divisible by 4

Number	Divisible?	Why?
348	Yes	48 is a multiple of 4
27,616	Yes	16 is a multiple of 4
8,514	No	14 is <i>not</i> a multiple of 4
722	No	22 is <i>not</i> a multiple of 4
1,200	Yes	The last two digits are 00 200 is a multiple of 4



POINTS TO REMEMBER



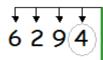
Look at the last digit

If it is a 5 or a 0 the number is divisible by 5

Number	Divisible?	Why?
3,425	Yes	The last digit is 5
750	Yes	The last digit is 0
8,551	No	The last digit is 1 (not a 0 or a 5)
394	No	The last digit is 4 (not a 0 or a 5)



POINTS TO REMEMBER



Is it a multiple of 2 and a multiple of 3?

The last digit is 4 so it is a multiple of 2

What do the digits add up to?

$$6 + 2 + 9 + 4 = 21$$

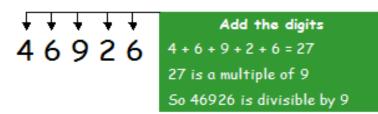
21 is a multiple of 3

So 6294 is divisible by 6

Number	Divisible?	Why?
5,106	Yes	The last digit is a 2 (it is a multiple of 2) and $5 + 1 + 0 + 6 = 12$ (12 is a multiple of 3)
636	Yes	The last digit is a 6 (it is a multiple of 2) and $6 + 3 + 6 = 15$ (15 is a multiple of 3)



POINTS TO REMEMBER



Number	Divisible?	Why?
7,686	Yes	7 + 6 + 8 + 6 = 27 (27 is a multiple of 9)
252	Yes	2 + 5 + 2 = 9 (9 is a multiple of 9)
883	No	8 + 8 + 3 = 19 (19 is <i>not</i> a multiple of 9)
5,105	No	5 + 1 + 0 + 5 = 11 (11 is <i>not</i> a multiple of 9)



POINTS TO REMEMBER

Look at the last digit

If it is a 0 the number is divisible by 10

Number	Divisible?	Why?
880	Yes	The last digit is 0
9,560	Yes	The last digit is 0
312	No	The last digit is 2 (not a 0)
7,897	No	The last digit is 7 (not a 0)





POINTS TO REMEMBER

Rule: A number passes the test for 11 if the difference of the sums of alternating digits is divisible by 11.

Rule for Divisibility by 11

$$10,813$$
?
 $10,813$
 $1+8+3=12$
 $0+1=1$
 $12-1=11$
 $11\div 11$



POINTS TO REMEMBER

- 12 divisible by both 3 and 4
- 15 divisible by both 3 and 5
- 18 divisible by both 2 and 9
- 20 last digit is 0 and the preceding digit is an even number
- 22 divisible by both 2 and 11
- 24 divisible by both 3 and 8
- 25 last two digits are 00, 25, 50, or 75
- 30 last digit is 0 and it is divisible by 3
- 33 divisible by both 3 and 11
- 36 divisible by both 4 and 9
- 40 divisible by both 5 and 8
- 44 divisible by both 4 and 11
- 48 divisible by both 6 and 8 50 last two digits are 00 or 50



PROBLEM 1:



If the product 3252 * 9P2 is divisible by 12, the value of P is:

A. 8

B. 5

C. 2

D. 1

Option: D



PROBLEM 2:



Which of the following numbers is divisible by 24?

A. 35718

B. 3125736

C. 537804

D. 63810

Option: B



PROBLEM 3:



How many of the following numbers are divisible by 132?

264, 396, 462, 792, 968, 2178, 5184, 6336

A. 5

B. 7

C. 4

D. 6

Option: C



PROBLEM 4:



476XY0 is divisible by both 3 & 11. The non-zero digits in the hundred's and ten's places are respectively:

A. 7 & 4

B. 5 & 7

C. 8 & 5

D. None of these

Option: C



PROBLEM 5:



The least perfect square, which is divisible by each of 15, 20 and 36 is:

- (A) 1200
- (B) 800
- (C) 1000
- (D) 900

Answer: (D)



PROBLEM 6:



When the integer n is divided by 8, the remainder is 3. What is the remainder if 6n is divided by 8?

A. 0

B. 2

C. 1

D. 3

Correct Op: B



PROBLEM 7:



The sum of three consecutive natural numbers each divisible by 3 is 72. What is the largest among them?

A. 21

B. 24

C. 27

D. 30

Correct Op: C



PROBLEM 8:



The total number of two-digit positive integer < than 100, which are not divisible by 2, 3 and 5 is

A. 23

B. 24

C. 25

D. 26

Correct Op: B



PROBLEM 9:



Which of the following numbers is not divisible by 14?

- A) 3542
- B) 2086
- C) 1998
- D) 2996

ANS:Option C



PROBLEM 10:



How many of the following numbers are divisible by 3 but not by 9. 4320, 2343, 3474, 4131, 5286, 5340, 6336, 7347, 8115, 9276

- a) 5
- b) 6
- c)7
- d) None of these

ANS: b) 6



PROBLEM 11:



The difference between the squares of two consecutive odd integers is always divisible by:

- a) 3
- b) 6
- c)7
- d) 8

ANS:d)



PROBLEM 12:



If p and q are the two digits of the number 653pq such that this number is divisible by 80, then p+q is equal to:

- a) 2
- b) 3
- c) 4
- d) 6

ANS:a)



PROBLEM 13:



A 3-digit number 4p3 is added to another 3-digit number 984 to give the four-digit number 13q7, which is divisible by 11. Then, (p + q) is :

- a) 10
- b) 11
- c) 12
- d) 13

ANS: a)



PROBLEM 14:



A six-digit number is formed by repeating a three-digit number; for example, 256256 or 678678 etc. Any number of this form is always exactly divisible by :

- a) 7 only
- b) 13 only
- c) 11 only
- d) 1001

ANS: d)



PROBLEM 15:



If the number 653ab is divisible by 90, then (a + b) = ?

- a) 2
- b) 3
- c) 4
- d) 6

ANS: c)



PROBLEM 16:



P is a whole number which when divided by 4 gives 3 as remainder. What will be the remainder when 2P is divided by 4?

- a) 2
- b) 3
- c) 4
- d) 6

ANS: a)



PROBLEM 17:



The difference between two numbers is 2395. When the larger number is divided by the smaller one, the quotient is 6 and the remainder is 15. The smaller number is

- a) 200
- b) 334
- c) 476
- d) 634

ANS: c)



PROBLEM 18:



If x is a whole number, then $x^2(x^2 - 1)$ is always divisible by

- a) 12-x
- b) Multiple of 12
- c) 12
- d) 24

ANS: c)



PROBLEM 19:



A number is divided by 221, the remainder is 64. If the number be divided by 13 then remainder will be

- a) 1
- b) 2
- c) 3
- d) 4
- ANS: b)



PROBLEM 20:



How many numbers between 190 and 580 are divisible by 4,5 and 6?

- a) 6
- b)7
- c) 8
- d) 9

ANS: a)

