1. 935421×625=?

A. 542622125 B. 584632125
C. 544638125 D. 584638125

Hide Answer | Discuss Notebook

answer with explanation

Answer: Option D

Explanation:

935421×625=935421×54=935421×(102)4=935421×1000016=584638125

2. Which of the following is a prime number ?

A. 9 B. 8
C. 4 D. 2

Hide Answer | Discuss Notebook

answer with explanation

Answer: Option D

Explanation:

2 is a prime number. A prime number is a natural number greater than 1 which has no positive divisors other than 1 and itself. Hence the primer numbers are 2,3,5,7,11,13,17,...

3. What is the largest 4 digit number exactly divisible by 88?

A. 9944 B. 9999
C. 9988 D. 9900

Hide Answer | Discuss Notebook

answer with explanation

Answer: Option A

Explanation:

Largest 4 digit number = 9999

9999 ÷ 88 = 113, remainder = 55

Hence largest 4 digit number exactly divisible by 88
= 9999 - 55 = 9944

4. $\{(481 + 426)^2 - 4 \times 481 \times 426\} = ?$

A. 3025 B. 4200

C. 3060 D. 3210

Hide Answer

| | Discuss Notebook

answer with explanation

Answer: Option A

Explanation:

(a+b)2=a2+2ab+b2 (a−b)2=a2−2ab+b2

Given statement is like (a+b)2−4ab

where a=481 and b=426

(a+b)2−4ab=(a2+2ab+b2)−4ab=a2−2ab+b2=(a−b)2

Hence
(481+426)2−4×481×426=(481−426)2=552=3025

5. $(64 - 12)^2 + 4 \times 64 \times 12 = ?$

A. 5246 B. 4406

C. 5126 D. 5776

Hide Answer

| | Discuss Notebook

answer with explanation

Answer: Option D

Explanation:

(a+b)2=a2+2ab+b2 (a−b)2=a2−2ab+b2

Given statement is like (a−b)2+4ab

where a=64 and b=12

(a−b)2+4ab=(a2−2ab+b2)+4ab=a2+2ab+b2=(a+b)2

Hence
(64−12)2+4×64×12=(64+12)2=762=5776

6. $121 \times 5^4 = ?$

A. 68225 B. 75625

C. 72325 D. 71225

Hide Answer | | Discuss Notebook

answer with explanation

Answer: Option B

Explanation:

$121 \times 54 = 121 \times (102)4 = 121 \times 1000016 = 7.5625 \times 10000 = 75625$

7. If $(2^{32} + 1)$ is completely divisible by a whole number, which of the following numbers is completely divisible by this number?

A. $(2^{96} + 1)$ B. (7×2^{23})

C. $(2^{16} - 1)$ D. $(2^{16} + 1)$

Hide Answer | | Discuss Notebook

answer with explanation

Answer: Option A

Explanation:

Let 232=x

.

Then (232+1)=(x+1)

Assume that (x+1) is completely divisible by a whole number, N

$(296+1)=(232)3+1=(x3+1)=(x+1)(x2-x+1)$

if (x+1) is completely divisible by N, $(x+1)(x2-x+1)$ will also be divisible by N

Hence (296+1)

is completely divisible N

8. How many of the following numbers are divisible by 132?
264, 396, 462, 792, 968, 2178, 5184, 6336

A. 4 B. 3
C. 6 D. 8

Hide Answer | | Discuss Notebook

answer with explanation

Answer: Option A

Explanation:

If a number is divisible by two co-prime numbers, then the number is divisible by their product also.

If a number is divisible by more than two pairwise co-prime numbers, then the number is divisible by their product also. (read more)

If a number is divisible by another number, then it is also divisible by all the factors of that number. (read more)

132 = 3 × 4 × 11 where 3, 4 and 11 are pairwise co-prime numbers. Also, 3,4 and 11 are factors of 132. Hence,
(1) if a number is divisible by 3, 4 and 11, the number will be divisible by their product 132 also.
(2) If a number is not divisible by 3 or 4 or 11, it is not divisible by 132

You must learn Divisibility Rules to say whether a given number is divisible by another number without actually performing the division. Please go through divisibility rules before proceeding further.

264 is divisible by 3, 4 and 11
=> 264 is divisible by 132

396 is divisible by 3, 4 and 11
=> 396 is divisible by 132

462 is divisible by 3 and 11, but not divisible by 4
=> 462 is not divisible by 132

792 is divisible by 3, 4 and 11
=> 792 is divisible by 132

968 is divisible by 4 and 11, but not divisible by 3
=> 968 is not divisible by 132

2178 is divisible by 3 and 11, but not divisible by 4

=> 2178 is not divisible by 132

5184 is divisible by 3 and 4, but not divisible by 11
=> 5184 is not divisible by 132

6336 is divisible by 3, 4 and 11
=> 6336 is divisible by 132

Hence, only 264, 396 ,792 and 6336 are divisible by 132. So the answer is 4

9. All prime numbers are odd numbers
A. True B. False
Hide Answer
| | Discuss
Notebook
answer with explanation

Answer: Option B

Explanation:

2 is even prime number

10. What is the unit digit in (6324)1797×(615)316×(341)476 ?

A. 1 B. 2
C. 4 D. 0
Hide Answer
| | Discuss
Notebook
answer with explanation

Answer: Option D

Explanation:

unit digit in $(6324)^{1797}$
= unit digit in $(4)^{1797}$
= unit digit in $[(4^2)^{898} \times 4]$
= unit digit in $[16^{898} \times 4]$
= unit digit in (6×4)
= 4

unit digit in $(615)^{316}$
= unit digit in $(5)^{316}$
= 5

unit digit in $(341)^{476}$

= unit digit in $(1)^{476}$

= 1

Hence, unit digit in $(6324)^{1797} \times (625)^{316} \times (341)^{476}$

= unit digit in [4 × 5 × 1]

= 0

11. 5216 × 51 = ?

A. 266016 B. 212016

C. 266436 D. 216314

Hide Answer | | Discuss Notebook

answer with explanation

Answer: Option A

Explanation:

Normal way of multiplication may take time. Here is one alternative.

5216×51=(5216×50)+5216=(5216×1002)+5216=5216002+5216=260800+5216=266016

12. Which of the following number is divisible by 24 ?

A. 31214 B. 61212

C. 512216 D. 3125832

Hide Answer | | Discuss Notebook

answer with explanation

Answer: Option D

Explanation:

If a number is divisible by two co-prime numbers, then the number is divisible by their product also.

If a number is divisible by more than two pairwise co-prime numbers, then the number is divisible by their product also. (read more)

If a number is divisible by another number, then it is also divisible by all the factors of that number. (read more)

24 = 3 × 8 where 3 and 8 are co-prime numbers. 3 and 8 are also factors of 24. Hence,
(1) If a number is divisible by 3 and 8, the number will be divisible by their product 24 also.
(2) If a number is not divisible by 3 or 8, it is not divisible by 24

You must learn Divisibility Rules to say whether a given number is divisible by another number without actually performing the division. Please go through divisibility rules before proceeding further.

31214 is not divisible by 3 and 8
=> 31214 is not divisible 24

61212 is not divisible by 8 though it is divisible by 3
=> 61212 is not divisible 24

512216 is not divisible by 3 though it is divisible by 8
=> 512216 is not divisible 24

3125832 is divisible by 3 and 8
=> 3125832 is divisible 24

13. 719×719+347×347−719×347719×719×719+347×347×347=?

A. 1372
B. 25133
C. 11066
D. 56

Hide Answer
| | Discuss Notebook
answer with explanation

Answer: Option C

Explanation:

The given statement is in the form a2+b2−aba3+b3

where a=719 and b=347

(Reference: Basic Algebraic Formulas)

a2+b2−aba3+b3=(a2+b2−ab)(a+b)(a2−ab+b2)=1a+b=1719+347=11066

14. If the number 481*673 is completely divisible by 9, what is the the smallest whole number in place of *?

A. 3 B. 7
C. 5 D. 9

Hide Answer | | Discuss Notebook

answer with explanation

Answer: Option B

Explanation:

Let x

be the smallest whole number in place of *

481x673 is completely divisible by 9
=> (4+8+1+x+6+7+3) is divisible by 9 (Reference: Divisibility by 9)
=> (29+x) is divisible by 9

x should be the smallest whole number.
Hence, (29+x)=36
=>x=36−29=7

15. If n is a natural number, then $(6n^2 + 6n)$ is always divisible by:

A. Both 6 and 12 B. 6 only
C. 12 only D. None of these

Hide Answer | | Discuss Notebook

answer with explanation

Answer: Option A

Explanation:

$6n^2 + 6n = 6n(n + 1)$

n(n + 1) is always even when n is a natural number

Hence $6n^2 + 6n$ is always divisible by 6 and 12

16. 109 × 109 + 91 × 91 = ?

A. 20162 B. 18322
C. 13032 D. 18662

Hide Answer | | Discuss Notebook

answer with explanation

Answer: Option A

Explanation:

$(a+b)2+(a-b)2=2(a2+b2)$

(Reference: Basic Algebraic Formulas)

$1092+912=(100+9)2+(100-9)2=2(1002+92)=2(10000+81)=20162$

17. When $(67^{67}+67)$ is divided by 68, the remainder is

A. 0 B. 22

C. 33 D. 66

Hide Answer | Discuss Notebook

answer with explanation

Answer: Option D

Explanation:

$(xn+1)$ is divisible by $(x+1)$ when n is odd.

$\Rightarrow (67^{67}+1)$ is divisible by $(67+1)$

$\Rightarrow (67^{67}+1)$ is divisible by 68

$\Rightarrow (67^{67}+1) \div 68$ gives a remainder of 0

$\Rightarrow [(67^{67}+1)+66] \div 68$ gives a remainder of 66

$\Rightarrow (67^{67}+67) \div 68$ gives a remainder of 66

18. $(912+643)2+(912-643)2(912\times912+643\times643)=?$

A. 122 B. 2

C. 1 D. None of these

Hide Answer | Discuss Notebook

answer with explanation

Answer: Option B

Explanation:

$(a+b)2+(a-b)2=2(a2+b2)$

(Reference: Basic Algebraic Formulas)

$(912+643)2+(912-643)2(912\times912+643\times643) =(912+643)2+(912-643)2(9122+6432) =2(9122+6432)(9122+6432) =2$

19. What is the smallest prime number?

A. 0 B. 1

C. 2 D. 3

Hide Answer | | Discuss Notebook

answer with explanation

Answer: Option C

Explanation:

smallest prime number is 2.

0 and 1 are neither prime numbers nor composite numbers.

20. (23341379 × 72) = ?

A. 1680579288 B. 1223441288

C. 2142579288 D. 2142339288

Hide Answer | | Discuss Notebook

answer with explanation

Answer: Option A

Explanation:

23341379 × 72
= 23341379(70 + 2)
= (23341379 × 70) + (23341379 × 2)
= 1633896530 + 46682758
= 1680579288

21. If the number 5*2 is divisible by 6, then * = ?

A. 2 B. 7

C. 3 D. 6

Hide Answer | | Discuss Notebook

answer with explanation

Answer: Option A

Explanation:

A number is divisible by 6 if it is divisible by both 2 and 3 (read more)

Replacing * by x

5x2 is divisible by 2 (Reference: Divisibility by 2 rule)

For 5x2 to be divisible by 3, 5+x+2 shall be divisible by 3 (Reference: Divisibility by 3 rule)
=> 7+x shall be divisible by 3
=> x

can be 2 or 5 or 8

From the given choices, answer = 2

22. (1−1n)+(1−2n)+(1−3n)+⋯
(up to n terms) = ?

A. (n−1)

B. n2

C. 12(n−1)

D. 12(n+1)

Hide Answer | | Discuss Notebook

answer with explanation

Answer: Option C

Explanation:

1+1+1+⋯ n terms
=∑1=n

1+2+3+⋯+n=∑n =n(n+1)2

(reference)

$(1-1n)+(1-2n)+(1-3n)+\cdots$
(up to n terms)

=(1+1+1+ ... up to n terms) −(1n+2n+3n+⋯up to n terms)

$=n-1n(1+2+3+ \text{ ... up to n terms})=n-1n[n(n+1)2]=n-(n+1)2=(2n-n-1)2=n-12$

23. What least number should be added to 1056, so that the sum is completely divisible by 23?

A. 4 B. 3
C. 2 D. 1

Hide Answer
| | Discuss Notebook

answer with explanation

Answer: Option C

Explanation:

1056 ÷ 23 = 45 with remainder = 21

21 + 2 = 23.
Hence 2 should be added to 1056 so that the sum will be divisible by 23

24. 1398 × 1398 = ?

A. 1624404 B. 1851404
C. 1951404 D. 1954404

Hide Answer
| | Discuss Notebook

answer with explanation

Answer: Option D

Explanation:

$1398\times1398=(1398)2=(1400-2)2=14002-(2\times1400\times2)+22=1960000-5600+4=1954404$

Note : It is recommended to go through speed maths techniques based on Vedic Mathematics and Trachtenberg System of Mathematics so that you can do these calculations even faster.

25. On dividing a number by 56, we get 29 as remainder. On dividing the same number by 8, what will be the remainder ?

A. 2 B. 3

C. 4 D. 5

Hide Answer | | Discuss Notebook

answer with explanation

Answer: Option D

Explanation:

Solution 1

Number
=56x+29

(∵ since the number gives 29 as remainder on dividing by 56)
=(7×8×x)+(3×8)+5

Hence, if the number is divided by 8, we will get 5 as remainder.

Solution 2

Number
=56x+29

Let x=1.
Then number =56×1+29=85

85÷8=10

, remainder = 5

26. ? + 3699 + 1985 - 2047 = 31111

A. 21274 B. 27474

C. 21224 D. 27224

Hide Answer | | Discuss Notebook

answer with explanation

Answer: Option B

Explanation:

Let $x+3699+1985-2047=31111$

$x=31111-3699-1985+2047=27474$

27. The difference between a positive fraction and its reciprocal is $\frac{9}{20}$. Find the sum of that fraction and its reciprocal.

A. $\frac{41}{20}$

B. $\frac{17}{20}$

C. $\frac{11}{20}$

D. $\frac{9}{20}$

Hide Answer | | Discuss Notebook

answer with explanation

Answer: Option A

Explanation:

(Reference: Quadratic Equations and How to Solve Quadratic Equations)

Let the fraction $=x$

Then $x-\frac{1}{x}=\frac{9}{20} \Rightarrow \frac{x^2-1}{x}=\frac{9}{20} \Rightarrow \frac{x^2-1}{1}=\frac{9x}{20} \Rightarrow 20x^2-20=9x \Rightarrow 20x^2-9x-20=0 x=\frac{-b\pm\sqrt{b^2-4ac}}{2a}=\frac{9\pm\sqrt{(-9)^2-4\times20\times(-20)}}{2\times20}=\frac{9\pm\sqrt{81+1600}}{40}=\frac{9\pm41}{40}=\frac{50}{40}$ or $-\frac{32}{40}$

Given that the fraction is positive. Hence
$x=\frac{50}{40}=\frac{5}{4} x=\frac{4}{5}$

$x+\frac{1}{x}=\frac{5}{4}+\frac{4}{5}=\frac{5\times5+4\times4}{20}=\frac{41}{20}$

28. How many 3 digit numbers are completely divisible 6 ?

A. 146 B. 148

C. 150 D. 152

Hide Answer | | Discuss Notebook

answer with explanation

Answer: Option C

Explanation:

100 ÷ 6 = 16, remainder = 4. Hence 2 needs to be added to 100 to get the lowest 3 digit number divisible by 6.

Therefore, lowest 3 digit number divisible by 6
= 100 + 2 = 102

999 ÷ 6 = 166, remainder = 3. Hence 3 needs to be subtracted from 999 to get the highest 3 digit number divisible by 6.

Therefore, highest 3 digit number divisible by 6
= 999 - 3 = 996

Hence, 3 digit numbers divisible by 6 are 102, 108, 114,... 996

This is an arithmetic Progression with a=102,d=6,l=996

Number of terms
$=(l-a)d+1=(996-102)6+1=8946+1=149+1=150$

29. How many natural numbers are there between 43 and 200 which are exactly divisible by 6?

A. 28 B. 26

C. 24 D. 22

Hide Answer | | Discuss Notebook

answer with explanation

Answer: Option B

Explanation:

43÷6 = 7, remainder = 1. Hence 5 should be added to 43 to get the lowest number divisible by 6 between 43 and 200.

Therefore, lowest number divisible by 6 between 43 and 200
= 43 + 5 = 48

200÷6= 33, remainder = 2. Hence 2 should be subtracted from 200 to get the highest number

divisible by 6 between 43 and 200.

Therefore, highest number divisible by 6, between 43 and 200
= 200 - 2 = 198

Hence, natural numbers numbers divisible by 6 between 43 and 200 are 48, 54, 60,...198

This is Arithmetic Progression with a=48,d=6,l=198

Number of terms
$=(l-a)d+1=(198-48)6+1=1506+1=25+1=26$

30. What is the smallest 6 digit number exactly divisible by 111?

A. 100010 B. 100011
C. 100012 D. 100013

Hide Answer
| | Discuss
Notebook

answer with explanation

Answer: Option B

Explanation:

Smallest 6 digit number = 100000

100000÷111 = 900, remainder = 100. Hence 11 should be added to 100000 to get the smallest 6 digit number exactly divisible by 111

Therefore, smallest 6 digit number exactly divisible by 111
= 100000 + 11 = 100011

31. If x
and y are positive integers such that (3x+7y)
is a multiple of 11, then which of the followings are divisible by 11?

A. 9x+4y
B. x+y+4
C. 4x−9y
D. 4x+6y

Hide Answer
| | Discuss
Notebook

answer with explanation

Answer: Option C

Explanation:

By hit and trial method, we get x=5

and y=1 such that 3x+7y=15+7=22 is a multiple of 11.

(4x+6y)=(4×5+6×1)=26
=> not divisible by 11

(x+y+4)=(5+1+4)=10
=> not divisible by 11

(9x+4y)=(9×5+4×1)=49
=> not divisible by 11

(4x−9y)=(4×5−9×1)=20−9=11

=> divisible by 11

32. If 642−362=10x
, then x=?

A. 200 B. 220
C. 210 D. 280
Hide Answer
| | Discuss
Notebook
answer with explanation

Answer: Option D

Explanation:

a2−b2=(a−b)(a+b)

642−362=(64−36)(64+36)=28×100

Given that 642−362=10x
⇒28×100=10x⇒x=280

33. 852×852×852−212×212×212852×852+852×212+212×212=?

A. 640 B. 620
C. 740 D. None of these
Hide Answer
| | Discuss
Notebook
answer with explanation

Answer: Option A

Explanation:

$a^3-b^3=(a-b)(a^2+ab+b^2)$

Given Equation is in the form $a^3-b^3a^2+ab+b^2$

where a=852 and b=212

$a^3-b^3a^2+ab+b^2=(a-b)(a^2+ab+b^2)(a^2+ab+b^2)=(a-b)$

Hence answer $=(a-b)=(852-212)=640$

34. $2664\div12\div6=?$

A. 43 B. 41
C. 37 D. 33
Hide Answer
| | Discuss
Notebook
answer with explanation

Answer: Option C

Explanation:

2664 ÷ 12 = 222
222 ÷ 6 = 37

or

$2664\div12\div6=2664\times112\times16=37$

35. $(422+404)2-(4\times422\times404)=?$

A. None of these B. 342
C. 324 D. 312

Hide Answer | | Discuss Notebook

answer with explanation

Answer: Option C

Explanation:

$(a+b)2-4ab=(a2+2ab+b2)-4ab=(a2-2ab+b2)=(a-b)2$

Given Equation is in the form $(a+b)2-4ab$

where $a=422$ and $b=404$

Hence answer
$=(a+b)2-4ab=(a-b)2=(422-404)2=182=324$

36. Which one of the following can't be the square of a natural number?

A. 128242 B. 128881

C. 130321 D. 131044

Hide Answer | | Discuss Notebook

answer with explanation

Answer: Option A

Explanation:

Square of a natural number cannot end with 2.

Hence 128242 cannot be the square of a natural number

37. (32323 + 7344 + 41330) - (317 × 91) = ?

A. 54210 B. 54250

C. 52150 D. None of these

Hide Answer | | Discuss Notebook

answer with explanation

Answer: Option C

Explanation:

It's speed and accuracy which decides the winner. You can use various methods including Vedic mathematics to do calculations quickly.

(32323+7344+41330)−(317×91)=80997−28847=52150

38. (xn−an)
is completely divisible by (x−a)
, if
A. n
is an even natural number B. n
is and odd natural number
C. n
is any natural number D. n
is prime
Hide Answer
| | Discuss
Notebook
answer with explanation

Answer: Option C

Explanation:

(xn−an)

is completely divisible by (x−a) for every natural number n

39. The number 97215*6 is completely divisible by 11. What is the smallest whole number in place of * ?
A. 4 B. 2
C. 1 D. 3
Hide Answer
| | Discuss
Notebook
answer with explanation

Answer: Option D

Explanation:

from "Divisibility rule for 11",
if 97215*6 is divisible by 11, then (9+2+5+6)−(7+1+∗)

is divisible by 11
=> 22−(8+∗) is divisible by 11
=> (14−∗)

is divisible by 11

The smallest whole number which can be substituted in the place of * to satisfy the above equation is 3 such that 14 - 3 = 11 and 11 is divisible by 11.

Hence the answer is 3

40. (12+22+32+⋯+102)=?

A. 395 B. 375
C. 55 D. 385

Hide Answer
| | Discuss
Notebook
answer with explanation

Answer: Option D

Explanation:

12+22+32+⋯+n2
=∑n2=n(n+1)(2n+1)6

(Reference: Power Series)

12+22+32+⋯+102=n(n+1)(2n+1)6=10(10+1)[(2×10)+1]6=10×11×216=10×11×72=385

41. If the product 4864 × 9a2 is divisible by 12, then what is the value of a?

A. 1 B. 2
C. 5 D. 6

Hide Answer
| | Discuss
Notebook
answer with explanation

Answer: Option A

Explanation:

A number is divisible by 12 if the number is divisible by both 3 and 4.

A number is divisible by 3 if the sum of the digits is always divisible by 3.

A number is divisible by 4 if the number formed by the last two digits is divisible by 4.
(read more)

4864 × 9a2 is divisible by 12

=> 4864 × 9a2 is divisible by 3
and 4864 × 9a2 is divisible by 4

4864 is divisible by 4 because number formed by the last two digits is 64 which is divisible by 4. Hence 4864 × 9a2 will also be divisible by 4

4864 is not divisible by 3 (because 4 + 8 + 6 + 4 = 22 which is not divisible by 3). Hence 9a2 must be divisible by 3 because 4864 × 9a2 is divisible by 3
=> 9 + a + 2 is divisible by 3
=> 11 + a is divisible by 3

Hence a can be 1 or 4 or 7 such that 11 + a is divisible by 3

So, from the given choices, 1 is the answer.

42. $-88\times39+312=?$

A. -3120 B. -3200
C. 3120 D. 3200
Hide Answer
| | Discuss
Notebook
answer with explanation

Answer: Option A

Explanation:

Again a question on basic arithmetic. Many algebraic formulas and Vedic Maths methods can help you to solve such questions quickly.

$-88\times39+312=-3432+312=-3120$

or

Since 88 can be written as 11 × 8,
$-88\times39+312=-11\times8\times39+312$

$=-11\times312+312$ (Reference: Multiplication by 11 using Speed Mathematics)
$=-3432+312=-3120$

or

$-88\times39+312=-88\times(40-1)+312=-88\times40+88+312=-3520+88+312=-3120$

43. $378\times?=252$

A. 23
B. 34
C. 12
D. None of these

Hide Answer | | Discuss Notebook

answer with explanation

Answer: Option A

Explanation:

$378\times x=252 x=\frac{252}{378}=\frac{126}{189}=\frac{14}{21}=\frac{2}{3}$

44. What least number should be subtracted from 13601 such that the remainder is divisible by 87 ?

A. 27
B. 28
C. 29
D. 30

Hide Answer | | Discuss Notebook

answer with explanation

Answer: Option C

Explanation:

13601 ÷ 87 = 156, remainder = 29

Hence 29 is the least number which can be subtracted from 13601 such that the remainder is divisible by 87

45. Which one of the given numbers is completely divisible by 45?

A. None of these
B. 165642
C. 202860
D. 112330

Hide Answer | | Discuss Notebook

answer with explanation

Answer: Option C

Explanation:

If a number is divisible by two co-prime numbers, then the number is divisible by their product also.

If a number is divisible by more than two pairwise co-prime numbers, then the number is divisible by their product also. (read more)

If a number is divisible by another number, then it is also divisible by all the factors of that number. (read more)

We know that 45 = 9 × 5 where 9 and 5 are co-prime numbers. Also, 9 and 5 are factors of 45. Hence,

(1) If a number is divisible by 5 and 9, the number will be divisible by their product 45 also.
(2) If a number is not divisible by 5 or 9, it is not divisible by 45

You must learn Divisibility Rules to say whether a given number is divisible by another number without actually performing the division. Please go through divisibility rules before proceeding further.

112330 is divisible by 5 but not divisible by 9
=> 112330 is not divisible by 45

202860 is divisible by 5 and 9
=> 202860 is divisible by 45

165642 is not divisible by 5 and 9
=> 165642 is not divisible by 45

Hence, 202860 is the answer

46. What is the remainder when 17^{200} is divided by 18?

A. 3 B. 2
C. 1 D. 4

Hide Answer | | Discuss Notebook

answer with explanation

Answer: Option C

Explanation:

(xn−an)
is completely divisible by (x+a) when n
is even. (read more...)

17200−1200

is completely divisible by (17+1) as 200 is even.

=> (17200−1) is completely divisible by 18.

Hence, when 17200

is divided by 18, we will get 1 as remainder.

47. 12+22+32+⋯+82=?

A. 204 B. 200
C. 182 D. 214
Hide Answer
| | Discuss
Notebook
answer with explanation

Answer: Option A

Explanation:

12+22+32+⋯+n2
=∑n2=n(n+1)(2n+1)6

(Reference: Power Series)

12+22+32+⋯+82=n(n+1)(2n+1)6=8(8+1)[(2×8)+1]6=8×9×176=4×9×173=4×3×17=204

48. 1+2+3+⋯+12=?

A. 66 B. 68
C. 76 D. 78
Hide Answer
| | Discuss
Notebook
answer with explanation

Answer: Option D

Explanation:

$1+2+3+\cdots+n=\sum n$
$=n(n+1)2$

(Reference: Power Series)

$1+2+3+\cdots+12=n(n+1)2=12(12+1)2=12\times132=6\times13=78$

49. $13+23+33+\cdots+63=?$

A. 451 B. 441
C. 421 D. 401

Hide Answer | | Discuss Notebook

answer with explanation

Answer: Option B

Explanation:

$13+23+33+\cdots+n3=\sum n3$
$=n2(n+1)24=[n(n+1)2]2$

(Reference: Power Series)

$13+23+33+\cdots+63=[n(n+1)2]2=(6\times72)2=(3\times7)2=212=441$

50. Which one of the following is a prime number ?

A. 307 B. 437
C. 247 D. 203

Hide Answer | | Discuss Notebook

answer with explanation

Answer: Option A

Explanation:

$\sqrt{307}<18$

Prime numbers < 18 are 2, 3, 5, 7, 11, 13, 17

307 is not divisible by 2
307 is not divisible by 3
307 is not divisible by 5
307 is not divisible by 7
307 is not divisible by 11
307 is not divisible by 13
307 is not divisible by 17
Hence 307 is a prime number

$\sqrt{437} < 21$
Prime numbers < 21 are 2, 3, 5, 7, 11, 13, 17, 19

437 is not divisible by 2
437 is not divisible by 3
437 is not divisible by 5
437 is not divisible by 7
437 is not divisible by 11
437 is not divisible by 13
437 is not divisible by 17
But 437 is divisible by 19.
Therefore 437 is not a prime number

$\sqrt{247} < 16$
Prime numbers < 16 are 2, 3, 5, 7, 11, 13

247 is not divisible by 2
247 is not divisible by 3
247 is not divisible by 5
247 is not divisible by 7
247 is not divisible by 11
But 247 is divisible by 13.
Therefore 247 is not a prime number

$\sqrt{203} < 15$
Prime numbers < 15 are 2, 3, 5, 7, 11, 13

203 is not divisible by 2
203 is not divisible by 3
203 is not divisible by 5
But 203 is divisible by 7.
Therefore 203 is not a prime number