

11. The square of 86 is
A. 7396 **B.** 6436 **C.** 172 **D.** 1204
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12. $35 \times 35 =$
A. 280 **B.** 925 **C.** 1225 **D.** 70
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13. $22^3 =$
A. 484 **B.** 10648 **C.** 234256 **D.** 66
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14. 32^3 is read as
A. 32 cubed **B.** 32 squared **C.** 3 times 32 **D.** 3 power 32
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15. If $20^\square = 8000$, the number in the box is
A. 2 **B.** 4 **C.** 3 **D.** 400
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16. A number is divisible by 2 if the digit at its unit place is
A. 1, 3, 5, 7 or 9 **B.** 0 or 5 **C.** 2 only **D.** 0, 2, 4, 6 or 8
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17. Which of the following numbers between 8000 and 9000 is NOT divisible by 3?
A. 8186 **B.** 8997 **C.** 8607 **D.** 8427
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18. The largest number less than 4001 that is divisible by 3 is
A. 3998 **B.** 3999 **C.** 4000 **D.** 3996
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19. Which of the following numbers between 70000 and 80000 is NOT divisible by 4?
A. 77292 **B.** 75740 **C.** 75618 **D.** 71680
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20. Which of the following numbers between 9000 and 10000 is divisible by 5?
A. 9353 **B.** 9335 **C.** 9601 **D.** 9151
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21. Which of the following numbers between 20000 and 30000 is divisible by 6?
A. 26172 **B.** 26342 **C.** 26217 **D.** 25556
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22. Which of the following numbers between 30000 and 40000 is NOT divisible by 6?
A. 37143 **B.** 30366 **C.** 30546 **D.** 37314
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23. Which of the following numbers between 600 and 700 is NOT divisible by 7?
A. 623 **B.** 632 **C.** 658 **D.** 616
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24. To test 738 for divisibility by 7, twice the unit digit is subtracted from the remaining part. The result is
A. 65 **B.** 57 **C.** 722 **D.** 89
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25. Which of the following numbers between 60000 and 70000 is divisible by all of 2, 3, 4, 5 and 6?
A. 60090 **B.** 66204 **C.** 68620 **D.** 63540
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Key sheet

1. D	2. D	3. C	4. D	5. B
6. C	7. D	8. C	9. D	10. A
11. A	12. C	13. B	14. A	15. C
16. D	17. A	18. B	19. C	20. B
21. A	22. A	23. B	24. B	25. D

Solutions

1. Counting numbers 1, 2, 3, 4, ... are called

Natural numbers are the counting numbers 1, 2, 3, 4, ...

Ans: (D) natural numbers

2. Numbers which give 0 as remainder when divided by 2 are called

Even numbers give remainder 0 when divided by 2: 0, 2, 4, 6, ...

Ans: (D) even numbers

3. How many multiples of 8 are there between 30 and 70?

$$8 \times 4 = 32, 8 \times 5 = 40, 8 \times 6 = 48, 8 \times 7 = 56, 8 \times 8 = 64$$

There are 5.

Ans: (C) 5

4. Which of the following is a factor of 119?

$119 = 7 \times 17$, so 7 divides 119 without remainder.

3, 9, 11 leave a remainder.

Ans: (D) 7

5. The factors of 65 are

$$65 = 1 \times 65$$

$$= 5 \times 13$$

Factors of 65: 1, 5, 13, 65

Ans: (B) 1, 5, 13, 65

6. In $11t$, the variable is

$11t = 11 \times t$; t takes various values.

Ans: (C) t

7. Which of the following equals $-n$?

As $-1 \times a = -a$, $-1 \times n = -n$.

Ans: (D) $-1 \times n$

8. $r + r + r + r + r =$

$r + r + r + r + r$ is r added 5 times.

$$r + r + r + r + r = 5r$$

Ans: (C) $5r$

9. $5x + 2x + 10x =$

$$5x + 2x + 10x = (5 + 2 + 10)x = 17x$$

Ans: (D) $17x$

10. z^4 is equal to

z^4 is z multiplied 4 times.

Ans: (A) $z \times z \times z \times z$

11. The square of 86 is

$$86^2 = 86 \times 86$$

$$86 \times 6 = 516$$

$$86 \times 8 = 688, \text{ written one place to the left: } 6880$$

$$516 + 6880 = 7396$$

Ans: (A) 7396

12. $35 \times 35 =$

$$35^2 = 35 \times 35$$

$$35 \times 5 = 175$$

$$35 \times 3 = 105, \text{ written one place to the left: } 1050$$

$$175 + 1050 = 1225$$

Ans: (C) 1225

13. $22^3 =$

$$22^3 = 22 \times 22 \times 22$$

$$22 \times 22 = 484, 484 \times 22 = 10648$$

$$= 10648$$

Ans: (B) 10648

14. 32^3 is read as

$$32^3 = 32 \times 32 \times 32 \text{ is read as '32 cubed'.$$

Ans: (A) 32 cubed

15. If $20^\square = 8000$, the number in the box is

Divide by 20 again and again:

$$8000 \div 20 = 400, 400 \div 20 = 20$$

$$8000 = 20 \times 20 \times 20 = 20^3$$

Ans: (C) 3

16. A number is divisible by 2 if the digit at its unit place is

A number is divisible by 2 if the digit at its unit place is 0, 2, 4, 6 or 8.

Ans: (D) 0, 2, 4, 6 or 8

17. Which of the following numbers between 8000 and 9000 is NOT divisible by 3?

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

$$\text{Sum of the digits of 8186: } 8 + 1 + 8 + 6 = 23$$

23 is not divisible by 3 ($23 = 3 \times 7 + 2$), so 8186 is not divisible by 3.

Each of the others passes the test.

Ans: (A) 8186

18. The largest number less than 4001 that is divisible by 3 is

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

4000: digit sum 4, not divisible by 3

3999: digit sum 30, divisible by 3

Ans: (B) 3999

19. Which of the following numbers between 70000 and 80000 is NOT divisible by 4?

A number is divisible by 4 if its last two digits together are divisible by 4.

Last two digits of 75618 together: 18; $18 = 4 \times 4 + 2$, so 75618 is not divisible by 4.

Each of the others passes the test.

Ans: (C) 75618

20. Which of the following numbers between 9000 and 10000 is divisible by 5?

A number is divisible by 5 if the digit at its unit place is 0 or 5.

The digit at the unit place of 9335 is 5, so 9335 is divisible by 5.

The other three are not divisible.

Ans: (B) 9335

21. Which of the following numbers between 20000 and 30000 is divisible by 6?

A number is divisible by 6 if it is divisible by both 2 and 3.

The digit at the unit place of 26172 is 2, so 26172 is divisible by 2.

Sum of the digits of 26172: $2 + 6 + 1 + 7 + 2 = 18$

18 is divisible by 3 ($18 = 3 \times 6$), so 26172 is divisible by 3.

$\therefore$ 26172 is divisible by 6.

Each of the others fails the test.

Ans: (A) 26172

22. Which of the following numbers between 30000 and 40000 is NOT divisible by 6?

A number is divisible by 6 if it is divisible by both 2 and 3.

The digit at the unit place of 37143 is 3, so 37143 is not divisible by 2.

Sum of the digits of 37143: $3 + 7 + 1 + 4 + 3 = 18$

18 is divisible by 3 ($18 = 3 \times 6$), so 37143 is divisible by 3.

$\therefore$ 37143 is not divisible by 6.

Each of the others passes the test.

Ans: (A) 37143

23. Which of the following numbers between 600 and 700 is NOT divisible by 7?

A number is divisible by 7 if the remaining part minus twice the unit digit is a multiple of 7 (or 0).

632: $63 - 2(2) = 63 - 4 = 59$; $59 = 7 \times 8 + 3$, not a multiple of 7, so 632 is not divisible by 7.

Each of the others passes the test.

Ans: (B) 632

- 24.** To test 738 for divisibility by 7, twice the unit digit is subtracted from the remaining part. The result is
Remaining part = 73, unit digit = 8
 $73 - 8(2) = 73 - 16 = 57$
Ans: (B) 57
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- 25.** Which of the following numbers between 60000 and 70000 is divisible by all of 2, 3, 4, 5 and 6?
63540: unit digit 0 (by 2 and 5); digit sum 18 (by 3, so by 6); last two digits 40 (by 4)
68620 fails the rule for 3, 60090 fails the rule for 4, 66204 fails the rule for 5.
Ans: (D) 63540
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