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Mat 101
Assignement Week 3

2_ True

4_ False

6_ False

8_ True

10_ All natural number factors for 18 are :
     1, 2, 3, 6, 9, 18

12_ All natural number factors for the number 171 are:
     1, 3, 9, 19, 57, 171

14_ 330 is divisible by : a) 2 , b) 3 , d) 5 , e) 6 h) 10

16_ 135,792,468 is divisble by
     a) 2 , b) 3 , c) 4 e) 6 g) 9   i) 12

18_ le largest prime would have to be 199 from 2 To 200.

20— Prime number

22—

24— $\dfrac{35657}{181} = 197$ $\dfrac{35657}{197} = 181$

So, the prime factorization number for 35657 is

$$\boxed{35657 = 181 \cdot 197}$$

26— It is not possible due to the fact that the number 2 is the least prime number and also the only even prime.

28—   23 20 $\underline{|16}$ $\boxed{456,887,320}$
      16   145
      72
      64
      ___
      80
      0   Thus, 456,887,320 is divisible by 16.

30—

32_ 306 |2   153 |3   51 |3   17 |17
      10 | 153   -3 51   21 17   -1
      6   —   21 —
      0

So, 306 = 2×3×3×17
$$\boxed{306 = 2 \times 3^2 \times 17}$$

34_ 605 |5   121 |11   11 |11
      10 121   11 11   -1
      -5   11 —
      —   —

605 = 5 × 11 × 11
$$\boxed{605 = 5 \times 11^2}$$

36_ 1035 |3   345 |3   115 |5   23 |23
      13 345   -15 115   15 23   -1
      15   15 —   —
      —   —

1035 = 3 × 3 × 5 × 23
$$\boxed{1035 = 3^2 \times 5 \times 23}$$

38_ Yes, 422,142 is divisible by 7

40 _ No, 340,659 is not divisible by 7.
last digit 9×2 =18, 34065 − 18 = 34047

42_ Yes 979,608 is divisible by 7
Last digit 8×7 =16
97960 −16 = 97944, which is divisible by 7

44_ 1+0+2+9 = 14   ⟩ 120,121, 279
    2+1+1+7 = 11
    14 − 11 = 3.
So, 120,121,279 is not divisible by the number
    11.

46_ 5+0+9+2+9 = 25 ⟩ 500,590, 279
    0+5+0+7 = 12
    25−12 = 13 → Not divisible by ⑪

So, 500,590,279 is not divisible by ⑪

48_ 2+8+6+3+9+2 = 30 ⟩ 22,896,232, 942
    2+9+2+2+4 = 19
    30−19 = 11
So, 22,896,232, 942 is divisible by ⑪.

50_ | 75 = 15 ×5
    | 75 = 3 × 25

52 — Let's calculate the sum of all digits.

$$2+4+3+x+7+6+5 = 27+x \div 3 \text{ only if } x$$

$$\boxed{x = 0, 3, 6, 9}$$

54 — Possible replacement for x are :

$$\boxed{x = 0, 5}$$

56 — Possible replacement for x are :

$$\boxed{x = 0, 1, 2, 3, 4, 5, 6, 7, 8, 9} \text{ since the}$$

last digit of 56. 32,54x,290; 10 is zero.

58 — $234 = 2 \times 3 \times 3 \times 13$

$234 = 2 \times 3^2 \times 13$

$1+1 = 2. \quad 2+1 = 3, \quad 1+1 = 2$

$2 \times 3 \times 2 = \underline{\underline{12}}$

Thus, 234 has ⑫ number of divisors

60 — $2^3 \cdot 5^2 \cdot 13^3$

$3+1 = 4, \quad 2+1 = 3, \quad 3+1 = 4$

$4 \times 3 \times 4 = \underline{48}$

Thus, $2^3 \cdot 5^2 \cdot 13^3$ has ㊽ number of divisors.