Number Nest Weekly Challenge

1. Betty is an experienced jigsaw puzzler. On average, she will correctly place a puzzle piece every 30 seconds.

   a) How long, in minutes, should it take Betty to finish a 100 piece puzzle?

   100 x 30 = 3000 seconds

   3000 ÷ 60 = 50 minutes

   Answer: Betty should take 50 minutes to finish a 100 piece puzzle.

   b) How long, in hours, should it take Betty to finish a 3000 piece puzzle?

   3000 x 30 = 90,000 seconds

   90,000 ÷ 60 = 1,500 minutes

   1,500 ÷ 60 = 25 hours

   Answer: Betty should take 25 hours to finish a 3000 piece puzzle.

   c) How long, in hours and minutes, should it take Betty to finish a 10,000 piece puzzle?

   10,000 x 30 = 300,000 seconds

   300,000 ÷ 60 = 5000 minutes

   5000 ÷ 60 = 83 and ⅓

   Answer: Betty should take 83 hours and 20 minutes to finish a 10,000 piece puzzle.

   d) Betty works on a puzzle from 7:00 p.m. to 9:00 p.m. every weekday (she does not work on her puzzle on Saturday or Sunday). If she started a new 10,000 piece puzzle on 16th January 2023, on which date would she finish?

   83 hours and ⅓ ÷ 2 hours per day = 41 ⅔ days

   From 16th January 42nd weekday will be Wednesday 15th March

   Answer: Betty would finish on Wednesday 15th March 2023.

   e) Betty's friend Sally is a little quicker at correctly placing puzzle pieces. It takes Sally 18 seconds to correctly place a puzzle piece. How much faster, in minutes, would Sally finish a 7,525 piece puzzle than Betty?

   Betty - 30 x 7525 = 225,750 seconds

   Sally - 18 x 7525 = 135,450 seconds

   225,750 - 135,450 = 90, 300 seconds

   90,300 ÷ 60 = 1,505 minutes

   Answer: Sally would finish 1,505 minutes faster than Betty

 Questions sourced from The Centre for Education in Mathematics and Computing.

f) John started working on a puzzle after dinner at 18:40 on Tuesday and he finished at 16:30 the next day. He stopped to go to bed at 20:30 on Tuesday and restarted the following morning after breakfast at 9:00. He then continued all morning and had a break for his lunch at 13:45. He restarted the puzzle at 14:30. If he placed a piece every 50 seconds, how many pieces did he place in total?

Tuesday evening: 18:40 - 20:30 = 110 minutes

Wednesday morning : 9:00 - 13:45 =285 minutes

Wednesday afternoon: 14:30 - 16:30 = 120 minutes

110 + 285 + 120 = 515 minutes

515 x 60 = 30,900 seconds

30,900 ÷ 50 = 618

Answer: John placed 618 pieces in total.

Time Conversion List

(Look these up if you don't know them).

____ seconds = 1 minute

____ minutes = 1 hour

January = ______ days

February = ______ days

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