Revision problems

1. **Find the value of the expression:**
   a) $92 - 252 \div 18 + 57$
   b) $108 + 27 \times (132 - 28)$

2. **Find the value of each numerical expression. Give your answer rounded to the nearest ten.**
   a) $(342 \times 2^4 + 239) \times (2862 \div 3^3) + 1009$
   b) $(412 \times 3^2 + 1369) \times (1624 \div 2^3) - 82630$

3. **Find the value of the expression with variables**

$$3a^2 + 4(a + 3b) + 5b^3$$

when $a = 3, b = 2.$

4. **Solve the equations:**
   a) $4174 - (x - 568) = 2005$
   b) $(z - 367) + 3014 = 6183$
   c) $45(x + 99) = 13680$
   d) $36(x + 98) = 10980$
   e) $(x - 1255) \div 203 = 21$
   f) $(x - 1895) \div 202 = 43$

5. **Solve the equations:**
   a) $6x + 2x + 30 = 70$
   b) $5(x + 2) + 10x = 100$
   c) $630 \div (3x - 21) - 47 = 23$
   d) $(8y - 65) \div 7 + 39 = 64$

6. **Write down all two-digit numbers that are multiples of 3 and end with the digit 4.**

7. In the number $35*$, which digit should replace * so that the number is divisible by 2 but not divisible by 4?

8. **Find the HCF and LCM of the numbers:**
   a) 72 and 60
   b) 72 and 90

9. What is the smallest two-digit positive integer that leaves a remainder of 7 when divided by 37?

10. What is the greatest two-digit positive integer that leaves a remainder of 7 when divided by 15?

11. **Find the value of the expression:**

a)

$$9 - 3\frac{1}{2} \times (1\frac{3}{7} + 2\frac{1}{2}) \div 2\frac{1}{7}$$

b)

$$3\frac{7}{19} \times (\frac{5}{12} + \frac{3}{8}) \div 1\frac{1}{3} \; - \; 1\frac{1}{8} \div (1\frac{1}{5} - \frac{1}{4})$$

c)

$$2 \div 3\frac{1}{5} + (3\frac{1}{4} - \frac{2}{3}) \div \frac{2}{3} - (2\frac{5}{18} - \frac{17}{36}) \times \frac{18}{65}$$

d)

$$\frac{4}{75} \div (\frac{4}{5} \times 1\frac{1}{4}) \div (\frac{23}{25} - \frac{13}{15}) \times 1\frac{1}{15} - \frac{1}{15}$$

12. **Solve the equations:**

a)

$$\frac{3}{7} - (x - \frac{1}{8}) = \frac{3}{4} - \frac{1}{2}$$

b)

$$\frac{2}{3} + (\frac{1}{8} + x) = \frac{5}{6} + \frac{1}{12}$$

c)

$$3 - (x + 1\frac{1}{5}) = 1\frac{7}{25}$$

d)

$$(\frac{5}{6}x - \frac{1}{4}) \times 16 = 6$$

e)

$$(\frac{3}{5}x - \frac{2}{3}) \times 30 = 16$$

f)

$$5 - (x + \frac{2}{3}) = 3\frac{5}{18}$$

g)

$$\frac{3}{5}x - \frac{1}{3}x = 1\frac{4}{5}$$

h)

$$\frac{3}{4}y - \frac{1}{3}y = 3\frac{1}{8}$$

13. For making a concrete mix, a construction crew prepared a pile of sand. For the first batch they used $\frac{4}{9}$of all the sand, for the second batch they used $\frac{2}{15}$, and for the third batch they used $\frac{1}{5}$. The remaining sand has a mass of 360 kg. What was the original mass of the sand?

14. Pump A can empty a pit in $3\frac{1}{3}$hours. Pump B works 1.5 times faster than Pump A. How long will it take them to empty the pit if both pumps are working together?

15. A company owned by Alex can complete an order in 12 hours. A second company, owned by Brian, needs 2 hours less than Alex's company. A third company, owned by Chloe, needs 1.5 times as long as Brian's company. How long will it take the three companies to complete the order if they all work together at the same time?

16. In a Grade 7 class, $\frac{3}{4}$of the students went to the movie theater on Saturday, and $\frac{2}{7}$of the class went to a hockey game on Sunday. How many students are in the class if the total number of students is less than 30?

17. Find the sum of four numbers if their arithmetic mean (average) is $\frac{3}{8}$.

18. Find the sum of five numbers if their arithmetic mean (average) is $\frac{4}{15}$.