Workshop: Arithmetic, Fractions, Standard Form, Conversion of Units

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Arithmetic

1. $125 + 200 + 50 + 75$
2. $500 - 250$
3. $250 - 500$
4. $40 + 120 - 30 + 500 - 300$
5. 50×7
6. 30×0.8
7. 240×0.12
8. $3368 \div 8$
9. $2862 \div 6$
10. $1170 \div 12$

Fractions

11. Write each of these fractions in their lowest terms:

$$\frac{25}{30} \quad \frac{25}{75} \quad \frac{18}{42} \quad \frac{45}{60} \quad \frac{81}{90} \quad \frac{90}{81} \quad \frac{64}{48}$$

12. Perform the following calculations, and give the answer in the lowest terms:

a. $\frac{4}{9}+\frac{2}{9}$

b. $\frac{5}{8}-\frac{1}{8}$

c. $\frac{5}{8}\times\frac{3}{4}$

d. $\frac{4}{9}\times\frac{6}{11}$

e. $\frac{2}{7}\times 3$

f. $\frac{5}{12}\div\frac{2}{9}$

g. $\frac{3}{10}\div\frac{6}{7}$

h. $\frac{5}{8}\div 4$

Standard Form

13. Express the following numbers in standard form (scientific notation)

a. 52000

b. 420000

c. 642 million

d. 452×10^{64}

e. 0.05

f. 0.000234

g. 0.603

h. 300×10^{-8}

Converting Units

14. Convert each of the following, into the given unit:

    a. 3 kilograms into grams
    b. 16 litres into millilitres
    c. 0.42 grams into milligrams
    d. 1.63 milligrams into micrograms
    e. 0.0034 grams into micrograms
    f. 420 milligrams into grams
    g. 24000 millilitres into litres
    h. 650000 micrograms into grams

Mixed Questions

15. A patient requires 25 ml of drug, twice a day for 7 days. What is the total volume of drug that is required?

16. A patient requires 400 mg of a drug, three times a day for 10 days. How many grams of the drug are required in total?

17. A patient requires 300 mg of a drug, twice a day for 4 days and then reduce the dose to a third and take it twice a day for 3 days. How many grams of the drug are required in total?

18. During a day, a patient takes in water on 4 occasions. The amounts taken in are: 250 ml, 500 ml, 150 ml, and 125 ml. During the day they lose 785 ml of water. What is their net water intake?

19. A patient is currently taking 500 mg of a drug daily. It is decided that the patient should now only take three-quarters of what they are now taking. What is the patient's new dose?

20. To celebrate a pharmacist's birthday, their colleagues get them a cake. It is put out before the start of the celebration. When the celebration starts, they find that someone has been in and eaten $\frac{1}{4}$ of the cake. They moan a bit and then decide to start eating what is left. The pharmacist

with the birthday takes $\frac{1}{3}$ of the remaining cake. The other 5 guests then share the remainder equally between them.

a. What fraction of the total cake does the birthday pharmacist get?

b. What fraction of the total cake do the other guests each get?

21. The human body has between 4500 ml to 5700 ml of blood. If a person, at the upper end of this scale, loses 1.2 litres of blood, how many ml of blood would they now have (assuming new blood hasn't had time to be created within the body).

22. If a mixture is to be 15 mg in 1ml, how many mg are required to make 50 ml?

23. If a medicine is described as 8 g in 100 ml, how many mg are given if a patient receives a dose of 25 ml?

24. You have the following formula to create 300 ml of a particular medications X:

Ingredient A: 30 mg

Ingredient B: 180 mg

Ingredient C: 15ml

Water to 300 ml

a. How much of each ingredient you need to make 30ml. of the medication.

b. How much of each ingredient you need to make two thirds of the medication.

c. How much of the ingredients is needed to make 1 l of the medication X. Express your answers in grams and litres.