

MATHS FOR NURSES

Drug Strength as a Ratio – Worked Solutions

Question 1

A patient is prescribed 500mg of a drug that is available dissolved in a solution in a 1 in 1000 ratio. How much of the solution should the patient be given?

The drug is available in a 1 in 1000 ratio, which means that there is 1g of the drug in 1000ml of the solution. You can use this as your stock dose.

Because the prescribed dose is in milligrams, convert this 1g into 1000mg.

To work out the volume that you would give, divide the prescribed dose by the stock dose and multiply your answer by the volume that the stock dose is in.

The prescribed dose is 500mg. The stock dose is 1000mg and it is in a volume of 1000ml.

First, work out $500 \div 1000$. This will give you an answer of 0.5.

Then work out $0.5 \times 1000\text{ml}$, which is 500ml.

Answer: 500ml

Question 2

A patient is prescribed 35mg of a drug that is available dissolved in a solution in a 1 in 100 ratio. How much of the solution should the patient be given?

The drug is available in a 1 in 100 ratio, which means that there is 1g of the drug in 100ml of the solution. You can use this as your stock dose.

Because the prescribed dose is in milligrams, convert this 1g into 1000mg.

To work out the volume that you would give, divide the prescribed dose by the stock dose and multiply your answer by the volume that the stock dose is in.

The prescribed dose is 35mg. The stock dose is 1000mg and it is in a volume of 100ml.

First, work out $35 \div 1000$. This will give you an answer of 0.035.

Then work out $0.035 \times 100\text{ml}$, which is 3.5ml.

Answer: 3.5ml

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Question 3

A patient is prescribed 25mg of a drug that is available dissolved in a solution in a 1 in 10000 ratio. How much of the solution should the patient be given?

The drug is available in a 1 in 10000 ratio, which means that there is 1g of the drug in 10000ml of the solution. You can use this as your stock dose.

Because the prescribed dose is in milligrams, convert this 1g into 1000mg.

To work out the volume that you would give, divide the prescribed dose by the stock dose and multiply your answer by the volume that the stock dose is in.

The prescribed dose is 25mg. The stock dose is 1000mg and it is in a volume of 10000ml.

First, work out $25 \div 1000$. This will give you an answer of 0.025.

Then work out $0.025 \times 10000\text{ml}$, which is 250ml.

Answer: 250ml

Question 4

A patient is prescribed 400mg of a drug that is available dissolved in a solution in a 1 in 500 ratio. How much of the solution should the patient be given?

The drug is available in a 1 in 500 ratio, which means that there is 1g of the drug in 500ml of the solution. You can use this as your stock dose.

Because the prescribed dose is in milligrams, convert this 1g into 1000mg.

To work out the volume that you would give, divide the prescribed dose by the stock dose and multiply your answer by the volume that the stock dose is in.

The prescribed dose is 400mg. The stock dose is 1000mg and it is in a volume of 500ml.

First, work out $400 \div 1000$. This will give you an answer of 0.4.

Then work out $0.4 \times 500\text{ml}$, which is 200ml.

Answer: 200ml

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Question 5

A patient is prescribed 120mg of a drug that is available dissolved in a solution in a 1 in 2000 ratio. How much of the solution should the patient be given?

The drug is available in a 1 in 2000 ratio, which means that there is 1g of the drug in 2000ml of the solution. You can use this as your stock dose.

Because the prescribed dose is in milligrams, convert this 1g into 1000mg.

To work out the volume that you would give, divide the prescribed dose by the stock dose and multiply your answer by the volume that the stock dose is in.

The prescribed dose is 120mg. The stock dose is 1000mg and it is in a volume of 2000ml.

First, work out $120 \div 1000$. This will give you an answer of 0.12.

Then work out $0.12 \times 2000\text{ml}$, which is 240ml.

Answer: 240ml