

Answers to self-assessment

Chapter 2: Solutions

1. The final solution has a required strength of 15 mg in every 10 ml. Therefore, we require 150 mg (15×10) in every 100 ml (10×10). Therefore, we require $150 \times 5 = 750$ mg in 500 ml (100×5). **Answer:** c (750 mg)
2. 30 mg of the ingredient is dissolved in 1.5 ml. Therefore, $30 \div 1.5 = 20$ mg in every 1 ml. **Answer:** c (20 mg/ml)
3. The stock solution contains 600 micrograms in every 1 ml. The patient requires a dose of 1 mg.
 $1 \div 0.6 = 1.667$ ml. As the syringe is graduated in 0.1 ml, the required dose is 1.7 ml.
Answer: c (1.7 ml)
4. The stock solution contains 0.25 mg per 1 ml. $0.25 \times 0.2 = 0.05$ mg = 50 micrograms.
Answer: a (50 micrograms)
5. The required solution contains 6 g/l. Therefore, there are $6 \div 1000 = 6$ mg/ml.
 $6 \times 150 = 900$ mg = 0.9 g. **Answer:** d (0.9 g)
6. The stock solution contains 25 mg/5 ml. Therefore, the stock solution contains 5 mg per 1 ml. **Answer:** 1 ml
7. The stock solution contains 50 mg/5 ml. Therefore, for a dose of 37.5 mg, we require $(37.5 \div 50) \times 5 = 3.75$ ml. **Answer:** 3.75 ml
8. The stock solution contains 200 mg/5 ml. Therefore, for a dose of 125 mg, we require $(125 \div 200) \times 5 = 3.125$ ml. **Answer:** 3.125 ml
9. 0.1% w/v solution contains 100 mg per 100 ml. 500 ml of a 0.1% w/v solution contains $100 \times 5 = 500$ mg. 20% w/v solution contains 20 g per 100 ml. Therefore a 20% w/v solution will contain 2 g per 10 ml, 1 g per 5 ml and 500 mg per 2.5 ml.
Answer: 2.5ml of a 20% solution would be required to make up 500 ml of a 0.1% w/v solution.
10. 0.9% w/v solution contains 900 mg per 100 ml. Therefore, we require $(900 \div 100) \times 5000 = 45\,000$ mg = 45 g. **Answer:** 45 g
11. $5\% = 5$ g per 100 ml. $100 \text{ ml} \div 20 \text{ ml} = 5$. $5 \div 5 = 1$ g. **Answer:** 1 g
12. 0.2% w/v solution contains 200 mg per 100 ml. Therefore, there are 100 mg per 50 ml. **Answer:** d (100 mg)
13. 5% w/v solution contains 5 g per 100 ml. Therefore, there is 1 g per 20 ml.
Answer: c (1000 mg (or 1 g))
14. 0.01% w/v solution contains 0.01 g = 10 mg per 100 ml. $10 \times 3 = 30$ mg per 300 ml.
Answer: c (30 mg)
15. 15% w/v solution contains 15 g per 100 ml. $(15 \div 100) \times 750 = 112.5$ g
Answer: d (112.5 g)
16. 0.45% w/v solution contains 450 mg per 100 ml. Therefore, we require $(450 \div 100) \times 10\,000 = 45\,000$ mg = 45 g. **Answer:** d (45 g)