

Care Practice Book

Units of Measure Levels 1 & 2 ANSWERS

Question One

David works in an operating theatre. He is asked to reorder size 11 blade scalpels. He has this information about them

Length 41.5 mm → **4.15cm**

Width 5.9 mm → **0.59cm**

Material thickness 0.4 mm → **0.04cm**

Unfortunately, the order system only accepts the values in centimetres. Can you convert each measurement to centimetres?

There are 10mm in 1 cm. This means the values need to all be divided by 10 to turn them into cm.

Question Two

Her first patient is an eight year old male who has a height of 127cm. Julie needs to record his height in metres. What should she record? **1.27m**

100cm = 1m. To change from cm to metres you must divide by 100.

$$127 \div 100 = 1.27$$

Question Three

Hari works as a care assistant in a care home. Hari is asked to take cups of water to each resident as it is a very hot day. Each cup holds approximately 200ml of water and there are 18 residents. Hari has bottles of water that hold 1.5 L. How many bottles will Hari need to put on the trolley to ensure each resident gets a drink? **3 bottles.**

$$200\text{ml} \times 18 \text{ people} = 3600\text{ml}$$

Bottles of water are 1.5L

There are 1000ml in 1 L so multiply litres by 1000 to get ml.

$$1.5 \text{ L} \times 1000 = 1500\text{ml}$$

Divide the ml he wants by the ml in each bottle.

$$3600 \div 1500 = 2.4 \text{ bottles}$$

Hari will need to round this to 3 bottles to make sure he has enough.

OR

$$1.5\text{L} \times 1000 = 1500\text{ml}$$

Divide by 200 to see how many cups you can get from 1 bottle

$$1500 \div 200 = 7.5 \text{ cups.}$$

You need 18 cups for 18 residents. $18 \div 7.5 = 2.4$ bottles

OR

$$200\text{ml} \times 18 \text{ people} = 3600\text{ml}$$

Divide this by 1000 to turn into litres $\rightarrow 3.6$ litres

$$3.6 \div 1.5 = 2.4 \text{ bottles}$$

Question Four

In Hari's care home, one of the residents takes aspirin daily for angina. The resident tells Hari that they have to take 75g every day. Hari knows this can't be right. How can Hari tell this is wrong without looking at the patient records?

Accept any valid explanation

Example answers

There are 1000mg in each g so 75g would be 75,000mg. Hari can see on the bottle that each tablet is 300mg and there are 32 tablets in the bottle, which is only 2400g for the whole bottle. The patient would be taking 31 bottles each day!

The patient must have gotten the units wrong. It would be unrealistic to take 75g in a day when one tablet is only 300mg, which is 0.3g. The patient must mean 75mg.

Question Five

Adina is providing end of life care at home for a person with cancer. They have been advised to take Protifar High Protein Powder as they are having trouble eating. They have a tin containing 0.225kg of powder and the scoop size is 2.5g. The patient has 14 scoops per day. How many days will the tin last for? **It will last for 6 days.**

Convert all the measurements to the same unit.

There are 1000g in 1kg so to change 0.225kg to g multiply by 1000 → 225g

Now divide by the amount in 1 scoop

$225 \div 2.5 = 90$ scoops in the tin.

OR

There are 1000g in 1kg so to change 2.5g to kg divide by 1000 → 0.0025kg

$0.225 \div 0.0025 = 90$ scoops in the tin.

Now work out how many days that is by dividing by 14.

$90 \div 14 = 6.43$ (to 2 d.p.) so the tin will only last 6 whole days.

OR

14 scoops per day multiplied by the scoop size of 2.5g = 35g per day.

There are 1000g in 1kg so to change 0.225kg to g multiply by 1000 → 225g in the tin.

Divide 225g by 35g = 6.43 days

Question Six

Olga is a theatre nurse. She is asked to prepare the equipment and is asked to get ready dressing forceps (tweezers), straight, 4 1/2", medium, serrated, non-sterile, reusable.

When Olga checks the stock, all the forceps are labelled in millimetres and not in inches. What size forceps does Olga need? **112.5mm**

We need to change 4.5 inches to mm.

We can use this fact 1 inch = 2.5cm

To turn inches into cm multiply by 2.5 → $4.5 \times 2.5 = 11.25$ cm

We need the answer in mm. We know that there are 10mm in 1cm.

To turn cm to mm multiply by 10

$11.25 \times 10 = 112.5$ mm

Question Seven

Her nine year old male patient weighs 65 pounds. She needs to record his weight in kg. What weight should she record? **30kg**

We can use this fact $1\text{kg} = 2.2\text{ lbs}$

We can see the pounds number is always bigger than the kilogram number, this tells us we should divide 65 by 2.2 to make it smaller and turn it into kilograms.

$$65 \div 2.2 = 29.545$$

We could round this up to a whole number $\rightarrow 30\text{kg}$

Question Eight

a) Fatima is holding annual check-ups for patients with asthma. She asks a patient for their weight, and they tell her it is 10 stone 4 pounds. Fatima needs to record the weight in kg on the system. What is the patient's weight in kg? **65kg**

we need to use two facts

$$1\text{kg} = 2.2\text{ lbs and } 14\text{ pounds} = 1\text{ stone}$$

First, we need to convert everything to pounds.

$$14\text{ pounds} = 1\text{ stone so } 10\text{ stones would be } 10 \times 14 = 140\text{ pounds}$$

Add on the 4 pounds $\rightarrow 144\text{ pounds}$

$$1\text{kg} = 2.2\text{ lbs}$$

We need to divide 144 by 2.2 to turn it into kilograms $\rightarrow 65.45\text{kg}$ or round to a whole number.

b) She finds out the patient is 1.68m. The patient asks Fatima to tell her the height in feet and inches because, "I only understand old school measures!". What should Fatima tell the patient? **5 feet and 7 inches**

We need these facts

$$1\text{ inch} = 2.5\text{cm and } 12\text{ inches} = 1\text{ foot}$$

First, we need to change the 1.68m into cm to be able to use fact one.

$$\text{There are } 100\text{cm in } 1\text{m so we multiply } 1.68 \text{ by } 100 = 168\text{cm}$$

1 inch = 2.5cm so 168cm needs to be divided by 2.5 to get the answer in inches

$$168 \div 2.5 = 67.2\text{ inches}$$

Now we use fact two that 12 inches = 1 foot

To get the whole number of feet divide 67.2 by 12 = 5.6

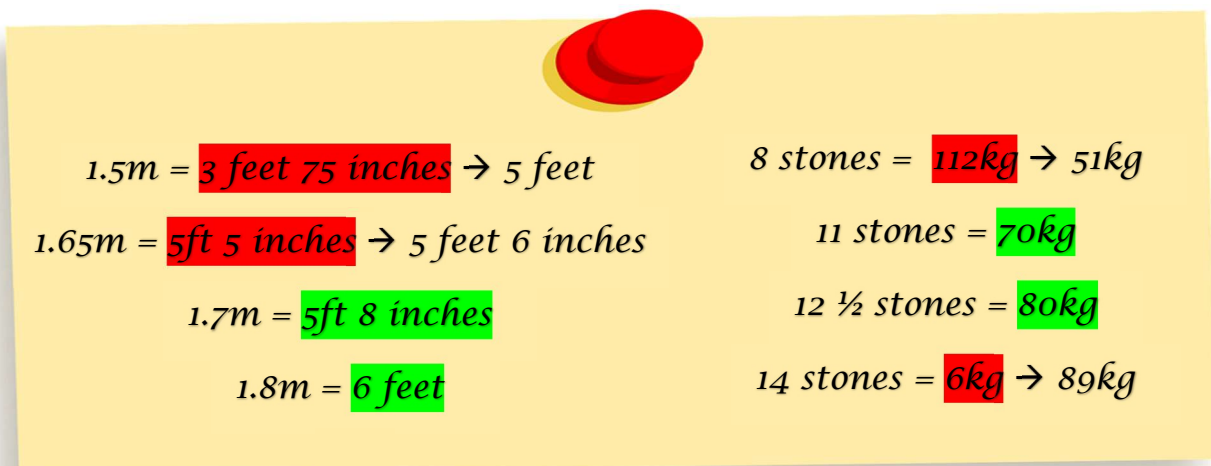
Some people will have written down 5.6 feet, but this is not right. We only know so far that there are 5 whole feet.

5 feet is 5×12 inches = 60 inches. We needed to work out 67.2 inches so we subtract 60 inches from this to tell us how many inches are left over.

$$67.2 - 60 = 7.2 \text{ inches (round to 7)}$$

The patient is 5 feet and 7 inches

c) Fatima finds she is doing a lot of metric to imperial conversions. She decides to make herself a quick reference guide to keep on her desk of common conversions she has to do.



$1.5m = 3 \text{ feet } 75 \text{ inches} \rightarrow 5 \text{ feet}$	$8 \text{ stones} = 112kg \rightarrow 51kg$
$1.65m = 5ft \text{ } 5 \text{ inches} \rightarrow 5 \text{ feet } 6 \text{ inches}$	$11 \text{ stones} = 70kg$
$1.7m = 5ft \text{ } 8 \text{ inches}$	$12 \frac{1}{2} \text{ stones} = 80kg$
$1.8m = 6 \text{ feet}$	$14 \text{ stones} = 6kg \rightarrow 89kg$

Can you check Fatima's guide for her and correct any mistakes she has made?

$$1.5m \times 100 = 150cm$$

$$150 \div 2.5 = 60 \text{ inches}$$

$$60 \div 12 = 5 \text{ feet}$$

$$1.65m \times 100 = 165cm$$

$$165 \div 2.5 = 66 \text{ inches}$$

$66 \div 12 = 5.5$ so five full inches (remember we can't say 5 feet 5 inches as that is no the same as 5 and a half feet because a whole foot is 12 inches so half a foot would be 6 inches not 5 inches!)

$$5 \times 12 = 60 \text{ inches}$$

$$66 - 60 = 6 \text{ inches}$$

5 feet 6 inches

8 stones x 14 = 112 pounds

112 divided by 2.2 = 50.9 or **51kg**

14 stones x 14 = 196 pounds

196 ÷ 2.2 = 89.09 or **89 kg**

Question Nine

Tijan has a second person he is treating for shingles. The doctor has ordered 15mg/kg of Acyclovir. The drug is dispensed as 100mg/2ml. Tijan's patient weighs 145 pounds. How many ml per dose should Tijan administer? **19.8ml per dose.**

1kg = 2.2 lbs → 130 ÷ 2.2 = 66kg (to the nearest whole number)

15mg/kg so we multiply their weight in kg by 15 → 66 x 15 = 990mg

100mg/2ml so 990 ÷ 100 = 9.9

We give ml for each of these lots so multiply this by 2 → 9.9 x 2 = 19.8ml per dose.