

## Math 10 GMF Exam Review Chapters 4 & 5

### Measurement Unit - Chapters 4 & 5

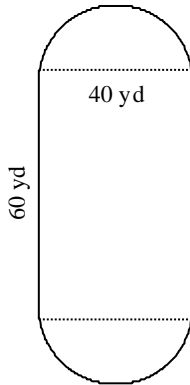
#### Multiple Choice

- How many inches is 7'4"?
  - 55"
  - 86"
  - 132"
  - 88"
- How many yards is 9 mi?
  - 14 500 yards
  - 15 840 yards
  - 16 040 yards
  - 12 672 yards
- Convert 4.8 miles into feet.
  - 304 128 feet
  - 2816 feet
  - 25 344 feet
  - 8448 feet
- Convert 64 041 inches into miles. Round to 1 decimal place.
  - 1.2 miles
  - 0.8 miles
  - 1.0 miles
  - 3.0 miles
- What is the circumference of a circular hot tub if its radius is 1.35 m?
  - 5.72 m
  - 8.48 m
  - 12.03 m
  - 4.24 m
- If 1 inch is equivalent to 2.54 cm, how many centimetres are there in 5 inches?
  - 1.97 cm
  - 7.54 cm
  - 10.16 cm
  - 12.7 cm
- If 17 km is equal to 10.56 miles, how many kilometres are in a mile? Round to 1 decimal place.
  - 0.6 km
  - 1.6 km
  - 6.4 km
  - 2.1 km
- A 4" by 6" photograph is in a frame  $\frac{3}{4}$ " wide. What is the outer perimeter of the framed photograph?
  - 26"
  - 13"
  - 22"
  - 41"
- The driving distance from Yellowknife, NWT, to Whitehorse, YT, is 2704 km. What is this distance in miles?
  - 1352 miles
  - 1690 miles
  - 4326 miles
  - 901 miles
- Zoë is painting a mural on one wall measuring 16' in length and 8' in height. There is one door measuring 30" by 7' on the wall. What is the surface area to be painted?
  - 128 sq ft
  - 110.5 sq ft
  - 126.5 sq ft
  - 42 sq ft
- What is the volume of a cube that measures 23" on each side?
  - 12 167 cu in
  - 4232 cu in
  - 529 cu in
  - 2116 cu in

12. The melting point of iron is  $1536^{\circ}\text{C}$ . At what temperature in degrees Fahrenheit will iron melt?
- $835^{\circ}\text{F}$
  - $2732^{\circ}\text{F}$
  - $2822^{\circ}\text{F}$
  - $2797^{\circ}\text{F}$
13. Farmers must monitor their cattle for signs of infection or disease. A cow's healthy body temperature is  $102.5^{\circ}\text{F}$ . What is its body temperature in degrees Celsius?
- $41.2^{\circ}\text{C}$
  - $39.2^{\circ}\text{C}$
  - $43^{\circ}\text{C}$
  - $37.2^{\circ}\text{C}$
14. You would like to buy 1.5 lb of deli meats. What should be the reading on the electronic scale when the correct amount of meat is placed on it?
- 27.0 oz
  - 12.0 oz
  - 42.0 oz
  - 24.0 oz
15. A delivery of patio stones arrives with 80 boxes, each containing 40 pounds of stone. What is the total weight of this delivery, in tons?
- 1.6 tons
  - 3.2 tons
  - 40.0 tons
  - 16.0 tons
16. Sarah bought 2 pounds 10 ounces of strawberries and 3 pound 2 ounces of blackberries. What is the combined weight of the berries?
- 4 lb 13 oz
  - 12 lb 5 oz
  - 8 lb 12 oz
  - 5 lb 12 oz
17. Smoked salmon is being sold for \$15.50 per pound. What is the cost of 6 ounces of salmon?
- \$11.62
  - \$7.75
  - \$5.81
  - \$7.21
18. A newborn kitten weighs about 700 g. What is the weight of the kitten in ounces?
- 37.2 oz
  - 24.7 oz
  - 34.7 oz
  - 19.1 oz
19. Ivan can bench press 270 lb at the gym. What is this weight in kilograms?
- 127.8 kg
  - 135.0 kg
  - 102.5 kg
  - 122.5 kg
20. A diving platform at a public swimming pool has a maximum load of 300 lb. How many 40-kg children can stand on the platform?
- 1
  - 4
  - 6
  - 3

### Short Answer

1. Find the distance Lori runs if she completes 9 laps of this track.

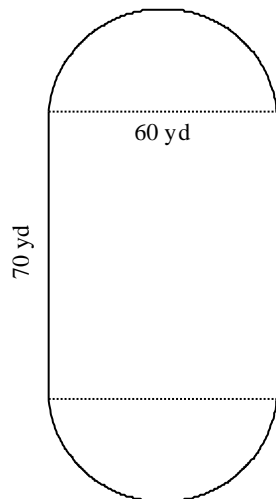


2. An American tourist is wondering how far it is from Saskatoon, SK to Edmonton, AB. You know that it is approximately 525 km. How far would you tell the tourist it is, in imperial units?

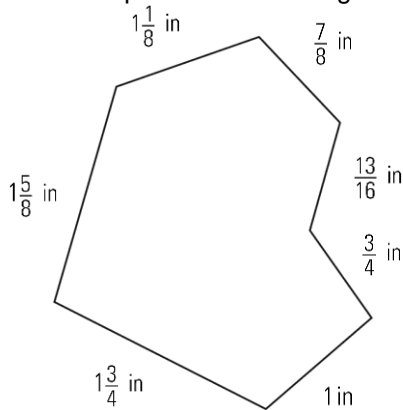
3. Horatio is wallpapering his room. His room measure 5 m long by 4.75 m wide by 3.25 m high. There are two windows that measure 1 m by 0.75 m and a door that is 1.3 m by 2.75 m, each of which do not require wallpaper. How much wallpaper is needed for Horatio's room?
4. A company is selling decorative Christmas tree covers. After doing some research, the company finds that the average tree measures 6.5 feet high, has a diameter of 3.5 feet, and a slant height of 6.7 feet. How much material will be needed for the cover? Round to the nearest square foot.
5. Your favourite gummy candies are being sold for \$3.00 for a package that weighs 12 ounces. Your other option is to buy them in bulk for \$4.32/pound. Which of these choices would be the best deal?
6. A moving truck has a maximum load capacity of 1.1 tons. If you have an inventory of 80 boxes to move and each box weighs 120 lb, how many trips will be required to move the load?
7. Gurveer was comparison shopping at two grocery stores and found that coffee beans were priced at \$42.00/kg and \$3.90/100 g. Which of these would be a better deal?

### Problem

1. How many laps of this track must Kabir complete in order to run 2.5 miles?



2. What is the perimeter of this figure?



3. Your kitchen measures 4 m by 3 m. You would like to install tiles that are 10" by 10".
- Calculate the length and width of the tiles in centimetres.
  - Calculate the area of each tile in  $\text{cm}^2$ .
  - Find how many tiles you need to cover the kitchen floor.
  - If the tiles come in packages of 23 that cost \$23.49 each, how much will it cost to tile the floor?
4. Surinder is 7 cm taller than Parmir. If Parmir is 4'8" tall, how tall is Surinder in feet and inches, to the nearest inch?
5. A bowling alley is installing new hardwood for its lanes. They have 9 lanes that are each 60 feet 9 inches long and 41 inches wide. If hardwood costs \$23.99/ $\text{m}^2$ , what will it cost to redo the lanes?
6. Will the contents of a 11 cm by 11 cm by 18 cm box fit into a 14 cm cube?
7. When you work out at the gym, your body temperature rises and you begin to sweat. Jake starts sweating when his body temperature reaches 99.4°F.
- Jake's normal body temperature is 98.5°F. How much does his temperature rise before he starts sweating?
  - What is Jake's body temperature in degrees Celsius when he starts sweating?
  - What is this temperature change in degrees Celsius?

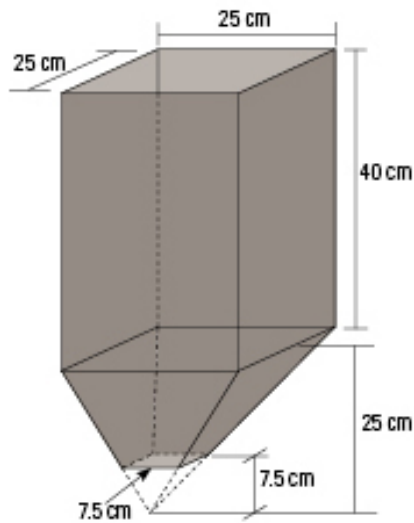
## Measurement Unit – Chapter 6

### Short Answer & Problems

1. Calculate the surface area of a hemispherical dome tent with a diameter of 7 feet.

2. A bulk food bin in a supermarket, as shown in the diagram, contains coffee beans. The bottom has a sliding gate so that the beans can be poured into bags.

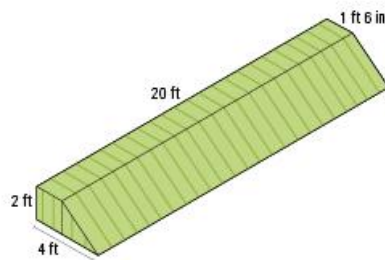
- What is the volume of the bin?
- One kilogram of coffee beans has a volume of  $2250 \text{ cm}^3$ . How many kilograms of coffee beans does the bin hold?



3. Ara has a contract to supply hanging planter baskets to the city to be hung from lampposts along the main street. The baskets are hemispherical with a diameter of 50 cm. She needs 48 baskets to cover six blocks.

- How much potting soil, in litres, does she need to fill all the baskets?
- Ara can buy a 60-litre bag of soil for \$13.50 or a cubic yard for \$41.50. Which is the cheaper option? (One cubic yard equals 27 cubic feet; one cubic foot equals 28.23 litres.) Justify your choice.

4. Seth works for a tent and awning company. He is asked to give a quote on a shop awning as shown below. What area of fabric should he use in his estimate?



5. The Great Pyramid at Giza in Egypt is 138.75 m high. Each side of the base has a length of 230.56 m.

- Neglecting the volume of the inner chambers, what is the volume of stone used to build the pyramid?
- Limestone weighs around 2.56 metric tonnes per cubic metre (1 metric tonne equals 1000 kg). Estimate the weight of the pyramid in tonnes.

**Math 10 GMF Exam Review Chapters 4 & 5**  
**Answer Section**

**MULTIPLE CHOICE**

1. D
2. B
3. C
4. C
5. B
6. D
7. B
8. A
9. B
10. B
11. A
12. D
13. B
14. D
15. A
16. D
17. C
18. B
19. D
20. D

**SHORT ANSWER**

1. Calculate the perimeter of the track.

$$P = 2(\text{side}) + \pi d$$

$$P = 2(60) + \pi(40)$$

$$P \approx 246 \text{ yd}$$

Multiply the perimeter by the number of laps.

$$9 \text{ laps} \times 246 = 2214 \text{ yd}$$

Lori runs 2214 yd.

2. Convert 525 km to miles.

$$1 \text{ km} = 0.6214 \text{ miles}$$

$$525 \times 0.6214 = 326.235$$

You should tell the tourist that the distance from Saskatoon, SK to Edmonton, AB is approximately 326 miles.

3. Calculate the surface area of the walls, ignoring the windows.

There are 2 walls that are 5 m long by 3.25 m high.

$$A_1 = 2(l \times h)$$

$$A_1 = 2(5 \times 3.25)$$

$$A_1 = 32.5 \text{ m}^2$$

There are 2 walls that are 4.75 m wide by 3.25 m high.

$$A_2 = 2(w \times h)$$

$$A_2 = 2(4.75 \times 3.25)$$

$$A_2 = 30.875 \text{ m}^2$$

Calculate the area that will not be wallpapered.

$$A_{door} = lw$$

$$A_{door} = 1.3 \times 2.75$$

$$A_{door} = 3.575 \text{ m}^2$$

There are 2 windows that are 1 m by 0.75 m.

$$A_{window} = 2(l \times w)$$

$$A_{window} = 2(1 \times 0.75)$$

$$A_{window} = 1.5 \text{ m}^2$$

Calculate the total area to be wallpapered.

$$A_{total} = A_1 + A_2 - A_{door} - A_{window}$$

$$A_{total} = 32.5 + 30.875 - 3.575 - 1.5$$

$$A_{total} = 58.3 \text{ m}^2$$

The total area to be wallpapered is 58.3 m<sup>2</sup>.

4. A Christmas tree is roughly a cone. Calculate the surface area of the cone, not including the bottom.

$$A = \pi r s$$

$$A = \pi \left( \frac{3.5}{2} \right) (6.7)$$

$$A \approx 37$$

37 ft<sup>2</sup> of material will be needed to make one tree cover.

5. Calculate the unit price of each option.

Package price:  $\$3.00 \div 12 \text{ oz} = \$0.25/\text{oz}$

Bulk:  $\$4.32 \div 16 \text{ oz} = \$0.27/\text{oz}$

The package is the best deal.

6. Calculate the total weight of the boxes.

$$120 \text{ lb} \times 80 = 9600 \text{ lb}$$

Convert the weight to tons.  
 $9600 \text{ lb} \div 2000 \text{ lb/tn} = 4.8 \text{ tn}$

Divide the total weight by the capacity of the truck to find the number of trips needed.  
 $4.8 \text{ tn} \div 1.1 \text{ tn} \approx 5$ , rounded up

5 trips are needed.

7. Calculate the cost per gram.  
Store 1:  $\$42.00 \div 1000 \text{ g} = \$0.042/\text{g}$   
Store 2:  $\$3.90 \div 100 \text{ g} = \$0.039/\text{g}$

$\$3.90/100 \text{ g}$  is a better deal.

## PROBLEM

1. The perimeter of the track is equal to the circumference of a circle with a diameter of 60 plus 2 times the side length of 70.

$$P = 2(\text{side length}) + \pi d$$

$$P = 2(70) + \pi(60)$$

$$P \approx 328 \text{ yd}$$

Convert the number of miles Kabir wants to run into yards.  
 $2.5 \text{ miles} \times 1760 \text{ yards per mile} = 4400 \text{ yards}$

Divide the distance Kabir wants to run by the perimeter of the track.  
 $4400 \text{ yards} \div 328 \text{ yards per lap} = 13.4 \text{ laps}$

Kabir will need to run 13.4 laps.

2. Calculate the sum of the 7 sides. Change mixed fractions to improper fractions.

$$P = 1\frac{3}{4} + 1\frac{5}{8} + 1\frac{1}{8} + \frac{7}{8} + \frac{13}{16} + \frac{3}{4} + 1$$

$$P = \frac{7}{4} + \frac{13}{8} + \frac{9}{8} + \frac{7}{8} + \frac{13}{16} + \frac{3}{4} + 1$$

$$P = \frac{28}{16} + \frac{26}{16} + \frac{18}{16} + \frac{14}{16} + \frac{13}{16} + \frac{12}{16} + \frac{16}{16}$$

$$P = \frac{127}{16}$$

$$P = 7\frac{15}{16} \text{ inches}$$

The perimeter is  $7\frac{15}{16}$  inches.

3. a) The tiles are square, so you only need to convert the length of one side.  
 $1 \text{ in} = 2.54 \text{ cm}$   
 $10 \text{ in} \times 2.54 \text{ cm/in} = 25.4 \text{ cm}$

The tiles are 25.4 cm by 25.4 cm.

- b) Use the formula for the area of a square.



$$A = (\text{side length})^2$$

$$A = 25.4^2$$

$$A \approx 645 \text{ cm}^2$$

The tiles are 645 cm<sup>2</sup>.

- c) Convert the dimensions of the kitchen to centimetres.

Length:  $100 \times 4 = 400 \text{ cm}$

Width:  $100 \times 3 = 300 \text{ cm}$

Calculate the area of the kitchen.

$$A = lw$$

$$A = 400 \times 300$$

$$A = 120\,000 \text{ cm}^2$$

The area of the kitchen is 120 000 cm<sup>2</sup>.

Divide the area of the kitchen by the area of one tile.

$$120\,000 \div 645 \approx 187, \text{ rounded up}$$

You will need about 187 tiles.

- d) Divide the number tiles needed for the kitchen by the number of tiles per package to find out how many packages you need to buy.

$$187 \div 23 \approx 9 \text{ packages}$$

Multiply by the cost per package.

$$9 \times \$23.49 = \$211.41$$

It will cost \$211.41 to tile the kitchen floor.

4. Convert the difference in centimetres to inches.

$$1 \text{ cm} = 0.3937 \text{ in}$$

$$7 \text{ cm} \times 0.3937 \text{ in/cm} = 3 \text{ in}$$

Add this to Parmir's height.

$$4'8" + 3" = 4'11"$$

Surinder is 4'11" tall.

5. Convert the lane's length into inches.

$$60 \text{ ft} \times 12 \text{ in/ft} + 9 \text{ in} = 729 \text{ in}$$

Convert to centimetres.

$$729 \text{ in} \times 2.54 \text{ cm/in} = 1851.66 \text{ cm}$$

Convert to metres.

$$1851.66 \text{ cm} \div 100 \text{ cm per m} = 18.5166 \text{ m}$$

Convert the lane's width to centimetres.

$$41 \text{ in} \times 2.54 \text{ cm/in} = 104.14 \text{ cm}$$

Convert to metres.

$$104.14 \text{ cm} \div 100 \text{ cm per m} = 1.0414 \text{ m}$$

Calculate area in  $\text{m}^2$ .

$$A = lw$$

$$A = 18.5166 \times 1.0414$$

$$A \approx 19.28 \text{ m}^2$$

Multiply by number of lanes.

$$9 \times 19.28 \text{ m}^2 = 173.52 \text{ m}^2$$

The lanes have a total surface area of  $173.52 \text{ m}^2$ .

Multiply the area by the price per square metre.

$$\$23.99 \times 173.52 = \$4162.74$$

It will cost \$4162.74 to redo the lanes.

6. Calculate the volume of the box.

$$V = lwh$$

$$V = 11 \times 11 \times 18$$

$$V = 2178 \text{ cm}^3$$

Calculate the volume of the cube.

$$V = s^3$$

$$V = 14^3$$

$$V = 2744 \text{ cm}^3$$

Therefore, the contents will fit in the cube.

7. a)  $99.4 - 98.5 = 0.9^\circ\text{F}$

His temperature rises  $0.9^\circ\text{F}$  before he begins sweating.

b)  $C = \frac{5}{9}(F - 32)$

$$C = \frac{5}{9}(99.4 - 32)$$

$$C = 37.4^\circ\text{C}$$

Jake's body temperature is  $37.4^\circ\text{C}$  when he starts sweating.

- c) Calculate his normal body temperature in degrees Celsius.

$$C = \frac{5}{9}(F - 32)$$

$$C = \frac{5}{9}(98.5 - 32)$$

$$C = 36.9^\circ\text{C}$$

Calculate the change in temperature.

$$37.4 - 36.9 = 0.5^{\circ}\text{C}$$

Jake's body temperature changes by  $0.5^{\circ}\text{C}$ .

### Exam Review Chapters 6 Answer Section

1.  $SA = 4\pi r^2 = 4\pi(3.5)^2 = \frac{153.94}{2} = 76.97 \text{ ft}^2$

2. a)  $V = lwh = 25 \times 25 \times 40 = 25000$

$$V = \frac{1}{3}(A_{\text{base}})h = \frac{1}{3}(25 \times 25)25 = 5208.33$$

$$V = \frac{1}{3}(A_{\text{base}})h = \frac{1}{3}(7.5 \times 7.5)7.5 = 140.63$$

$$25000 + 5208.33 = 30208.33 - 140.63 = 30067.7 \text{ cm}^3$$

b)  $30067.7 \text{ cm}^3 \times \frac{1 \text{ kg}}{2250 \text{ cm}^3} = 13.63 \text{ kg}$

3. a)  $V_{\text{spheres}} = \frac{4}{3}\pi r^3 = \frac{65449.85}{2} = 32724.92 \text{ cm}^3 \times \frac{1 \text{ L}}{1000 \text{ cm}^3} = 32.7 \text{ L} \times 48 = 1569.6 \text{ L}$

b)  $\frac{\$13.50}{60 \text{ L}} = \$0.225/\text{L}$        $\frac{\$41.50}{\text{yd}^3} \times \frac{1 \text{ yd}^3}{762.7 \text{ L}} = \$0.05/\text{L}$       Better buy

4.  $SA_{\text{rec}} = 2(2 \times 1.5) + (1.5 \times 2) = 9$        $SA_{\text{tri}} = 2(2.5 \times 2) + (3.12 \times 20) = 72.4$

$$SA_{\text{total}} = 81.4 \text{ ft}^2$$

5. a)  $2458553.5 \text{ m}^2$

b)  $6048041.62 \text{ t}$