CHAPTER 5 - SAMPLE CHAPTER TEST

Name: _____ Date:_____

Part A: Multiple Choice

Choose the best response to each of the following questions:

1. Given that the temperature Fahrenheit is 77°, the temperature in Celsius is approximately:

a) 25° b) 81° c) 137° d) 85°

2. Given that the temperature Celsius is 30°, the temperature in Fahrenheit is approximately:

a) −4° b) 22° c) 113.5° d) 86°

3. Forty-five degrees Fahrenheit are approximately how many degrees Celsius?

a) 81 b) 25 c) 6 d) 121

4. A mass of 2.2 tonnes, when stated in pounds, is approximately:

a) 1000 b) 4840 c) 2000 d) 35.2

5. A 10 lb bag of flour weighs approximately how many kilograms?

a) 4.5 b) 0.22 c) 22 d) 16

6. You are planning on carrying a load of bales weighing 7824 lb. How much is this in tons?

a) 489 b) 3.912 c) 7.824 d) 3.556

7. The tonnes to bushels conversion factor for flax is 39.4. How many bushels of flax are there in 4.8 tonnes?

a) 8.21 b) 0.12 c) 189.12 d) 10 560

8. The bushels to tonnes conversion factor for oats is 0.0154. How many tonnes of oats are there in 350 bushels?

a) 22 727.27 b) 5.39 c) 11 858 d) 0.35

9. The moon has a gravitational force that is approximately 0.165 that of earth's. If an object weighs 200 pounds on earth, what will it weigh on the moon?

a) 15 lb b) 200 lb c) 90.91 lb d) 33 lb

10. Jupiter has a gravitational force that is 2.34 times greater than earth's. If an object weighs 100 pounds on earth, what will it weigh on Jupiter?

a) 234 lb b) 42.74 lb c) 100 lb d) 45.46 lb

Part B: Fill in the Blanks

Perform the following conversions, writing the answer in the space provided.

11. 5000 g = _____kg

12. 60 mg = _____g

13. 3.85 kg = _____g

14. 7800 kg = _____tonnes

15. 4 tonnes = _____g

16. 1 lb 12 oz = _____oz

17. 1.6 ton = _____lb

18. 52 oz = _____lb _____oz

19. 1 tonne = _____lb

20. 8.2 kg = _____lb

Part C: Extended Answer

Show all work for full marks.

21. Oymyakon, a town of about 900 people in eastern Siberia, is so cold that there is no running water. It has an average winter temperature of −51°C and has recorded temperatures as low as −72°C. What are these in degrees Fahrenheit?

22. a) The fastest temperature drop in the world was recorded in South Dakota when there was a drop in temperature of 47° on the Fahrenheit scale in less than 15 minutes. How many degrees Celsius was this?

b) South Dakota also recorded the fastest rise in temperature, 27° on the Celsius scale in under 2 minutes. How many degrees Fahrenheit was this?

23. A truck has a Gross Vehicle Weight Rating of 2.85 tonnes. The curb weight of the truck is 1.75 tonnes and the weight of the driver, passenger, and their belongings is 190 kg. What is the maximum weight of the cargo the truck can carry?

24. The mega-grocery store where you work sells items by the box. You are required to stack a shelf with boxes of pickles. Each box of pickles contains 12 jars weighing 1 lb 12 oz each.
a) What is the weight in pounds and ounces of a box of pickles?

b) If the shelf on which you are stacking the boxes can hold 350 pounds, how many boxes of pickles can you safely stack on the shelf?

25. When Dale was building his fish pond, he needed a truck to carry away the soil and rocks that he dug from the hole. The hole was 2.4 m by 1.9 m by 1.6 m. The weight of the soil and rocks averages 112 pounds per cubic foot. (Use: 1 m = 3.3 ft)
a) What will be the weight, in pounds, of the soil and rocks dug out for the fish pond?

b) If the truck can carry 2.4 tonnes, how many trips must Dale make?

SAMPLE CHAPTER TEST SOLUTIONS

Part A: Multiple Choice

1. a)

$C = -(F - 32)$

$C = -[(77) - 32]$

$C = -(45)$

$C = -$ —

$C =$ ——

77°F = 25°C

2. d)

$F = -C + 32$

$F = -(30) + 32$

$F = -$ — $+ 32$

$F =$ —— $+ 32$

$F = 54 + 32$

33°C = 86°F

3. b) $C = -F$

$C = -(45)$

45 degrees Fahrenheit are approximately 25 degrees Celsius.

4. b) 2.2 t × 1000 kg/t × 2.2 lb/kg = 4840 lb

5. a) 10 lb ÷ 2.2 lb/kg = 4.5 kg

6. b) 7824 lb ÷ 2000 lb/tn = 3.912 tn

7. c) 4.8 t × 39.4 bu/t = 189.12 bu

8. b) 350 bu × 0.0154 t/bu = 5.39 t

9. d) 200 lb × 0.165 = 33 lb

10. a) 100 lb × 2.34 = 234 lb

Part B: Fill in the Blanks

11. 5000 g ÷ 1000 g/kg = 5 kg

12. 60 mg ÷ 1000 mg/g = 0.06 g

13. 3.85 kg × 1000 g/kg = 3850 g

14. 7800 kg ÷ 1000 kg/t = 7.8 t

15. 4 t × 1000 kg/t = 4000 kg
4000 kg × 1000 g/kg = 4 000 000 g

16. 1 lb × 16 oz = 16 oz
16 oz + 12 oz = 28 oz

17. 1.6 tn × 2000 lb/tn = 3200 lb

18. 52 oz ÷ 16 oz/lb = 3.25 lb
0.25 lb × 16 oz/lb = 4 oz
3 lb 4 oz

19. 1 t = 2200 lb

20. 8.2 kg × 2.2 lb/kg = 18.04 lb

Part C: Extended Answer

21. Use the formula $F = -C + 32$.
Convert −51°C to degrees Fahrenheit.
$F = -(-51) + 32$

$F = -$ $-$ $+ 32$

$F = -$ $+ 32$
$F = -92 + 32$
−51°C = −60°F
Convert −72°C to degrees Fahrenheit.
$F = -(-72) + 32$

$F = -$ $-$ $+ 32$

$F = -$ $+ 32$
$F = -130 + 32$
−72°C = −98°F

22. a) Each degree Fahrenheit is − of a degree Celsius.

$- \times 47 =$

= 26° on the Celsius scale

b) Each degree Celsius is − degrees Fahrenheit.

$- \times 27 =$

= 48.6° on the Fahrenheit scale.

23. The GVWR of the truck in kilograms is 2850.
The curb weight is 1750 kilograms.
The extra weight is 190 kg.
Therefore, the weight of truck, driver, passenger, and belongings is 1750 plus 190, which equals 1940 kg.
Calculate the maximum cargo the truck can carry.
$2850 - 1940 = 910$ kg

24. a) Since each box contains twelve 1-pound 12-ounce bottles, calculate the weight of each box.
12 (1 lb 12 oz) = 12 lb 144 oz
Change 144 oz to lb by dividing by 16.
144 oz ÷ 16 oz/lb = 9 lb
12 + 9 = 21 lb
A box of pickles weighs 21 lb.
b) Find the number of boxes it is safe to stack by dividing 350 by 21.

—— = 16.7 boxes

It is safe to stack 16 boxes on the shelf.
Seventeen boxes would be too heavy and the shelf might break.

25. a) Change the metres to feet using the supplied conversion factor.
2.4 m:
2.4 m × 3.3 ft/m = 7.92 ft
1.9 m:
1.9 m × 3.3 ft/m = 6.27 ft
1.6 m:
1.6 m × 3.3 ft/m = 5.28 ft
Find the volume of the hole using the formula $V = l \times w \times h$.
$V = 7.92 \times 6.27 \times 5.28$
$V = 262.2$ ft^3
Find the weight of the soil and rocks.
262.2 ft^3 × 112 lb/ft^3 = 29 366.40 lb
b) Change tonnes to kilograms by multiplying by 1000.
2.4 tonnes × 1000 kg/tonne = 2400 kg
Change kg to pounds by multiplying by 2.2.
2400 kg × 2.2 lb/kg = 5280 lb
Find the number of trips by dividing the weight of the soil and rocks by 5280.
29 366.40 ÷ 5280 = 5.6
He must make 6 trips.