

Chapter 1 Extra Credit

Name: _____ Date: _____

Directions: Show all work on a separate sheet of paper. Include formulas, substitutions, unit cancellation, and correct units. Answers without work may receive reduced credit.

Part I — SI Units

1. Convert 4,200 decigrams to grams.
2. How many millimeters are in 6 decimeters?
3. Convert 0.3 kiloliters into liters.
4. A fountain contains 53,000 deciliters of water. Express this amount in kiloliters.
5. Twelve dekagrams are equivalent to how many milligrams?
6. Convert 8.5 meters to centimeters.
7. Convert 725 milliliters to liters.
8. How many grams are in 3.6 kilograms?
9. Convert 0.045 kilometers to meters.
10. A sample has a mass of 2,750 milligrams. Express the mass in grams.

Part II — SI & English Conversions

Directions: Use appropriate conversion factors. Show unit cancellation.

11. A 2.0-liter bottle of soda is approximately how many quarts?
12. Felipe biked 54 kilometers. Approximately how many miles did he ride?
13. A pumpkin weighs 5.4 pounds. What is its mass in grams?
14. How many inches are in 72.0 meters?
15. A large order of french fries has a mass of 170 grams. Approximately how many pounds does it weigh?
16. Convert 15.0 inches to centimeters.

17. A suitcase has a mass of 18.0 kilograms. Approximately how many pounds does it weigh?
18. A road race is 10.0 kilometers long. Approximately how many miles is this?
19. A container holds 3.5 gallons. Approximately how many liters does it hold?
20. A package weighs 12.0 ounces. Approximately what is its mass in grams?

Part III — Significant Digits

21. Determine the number of significant figures in 120.2 mL.
22. Determine the number of significant figures in 0.0074 km.
23. Determine the number of significant figures in 300. g.
24. Determine the number of significant figures in 42 students.
25. A banner measures 400. cm long and 85 cm high. Calculate its area and report your answer using the correct number of significant figures.
26. Heidi drinks 0.25 L, 0.3 L, and 0.37 L of water during a race. How much water does she drink altogether? Report your answer using the correct precision.
27. Bleachers measure $4.50\text{ m} \times 2.85\text{ m}$. Calculate the area and report your answer using the proper number of significant figures.
28. Round the following value to 3 significant figures:
 $18.9476 = \underline{\hspace{2cm}}$
29. Calculate: $6.20\text{ m} + 1.3\text{ m} + 0.045\text{ m}$. Report the answer using the correct precision.
30. Calculate: $3.4\text{ cm} \times 2.15\text{ cm}$. Report the answer using the correct number of significant figures.

Part IV — Solving Equations

Directions: Use the correct formula. Solve for the unknown and include units.

31. Find the width of a rectangular solid, which has:
- Length = 12 mm
 - Height = 15 mm

- Volume = 720 mm^3

32. A marble rolls at 0.25 m/s for 30 seconds. How far does it travel?

33. Nate throws a paper wad 1.8 meters in 0.45 seconds. What is its speed?

34. Find the density of a steel nail, which has:

- Mass = 25 g
- Volume = 3.2 cm^3

35. What pressure does the block of wood exert on the floor, which has:

- Weight = 80 N
- Base Area = 4 m^2

36. Find the length of a rectangular solid, which has:

- Volume = 0.48 m^3
- Width = 0.60 m
- Height = 0.40 m

37. How long does the trip take? A toy car travels 5.0 meters at 0.25 m/s .

38. Find the mass of a cork, which has:

- Density = 0.12 g/cm^3
- Volume = 9.0 cm^3

39. Find the volume of a plastic ball, which has:

- Mass = 225 g
- Density = 2.00 g/cm^3

40. A sculpture weighs 540. N and rests on a base with an area of 2.50 m^2 . What pressure does it exert on the floor?