College of the North Atlantic

# AM1101 Sample Test: Modules 5 & 6

## Percent

Name: Solns

Class: _____

Date: _____

**Note: Electronics devices can be used to check your answers, but you must show all workings to receive full credit. Formulas and conversion tables are located at the end of the exam.**

**Answer all questions on this paper and show all workings for full credit.**

Change each of the following decimals to percent

1. 0.76 = 76%

2. 0.636363… = $63.\overline{63}$ %

3. 10.78 = 1078%

Change each of the following percent numbers to decimals

4. 49% = 0.49

5. 5.5% = 0.055

6. 199% = 1.99

Change each of the following fractions to percent

7. $\frac{7}{8}$

$$8\overline{)7.000}\quad 0.875$$
$$-64$$
$$60$$
$$-56$$
$$40$$
$$-40$$
$$0$$

= 0.875 = 87.5%

8. $4\frac{7}{9}$ = 4.7777…

= $47.\overline{7}$ %

$$9\overline{)7.0000}\quad 0.777\ldots$$
$$-63$$
$$70$$
$$-63$$
$$70$$
$$-63$$
$$7$$

Change each of the following percent numbers to fractions

9. 65% $= \frac{65}{100} \div 5 = \frac{13}{20}$

10. 125% $= \frac{125}{100} \div 25 = \frac{5}{4}$

11. 24% $= \frac{24}{100} \div 4 = \frac{6}{25}$

Solve each of the following percent problems

12. Find 22% of $23.98

$n = 0.22 \times 23.98$

$n = 5.2756 = \$5.28$

13. 18 is what percent of 72?

$18 = n \times 72$

$\frac{18}{72} = \frac{72n}{72}$

$n = 0.25 = 25\%$

14. 95 is 36% of what number?

$95 = 0.36 \times n$

$\frac{95}{0.36} = \frac{0.36n}{0.36}$

$263.\overline{8} = n$

15. What is the tax on an item that costs $105.99 if the sales tax is 15%? What is the total cost?

Tax = $0.15 \times 105.99 = \$15.90$

Total cost = $105.99 + 15.90 = \$121.89$

16. ~~95~~ 92% of the students in a course passed their test. If there are 50 students in the class, how many **failed** the test?

$0.92 \times 50 = 46$ passed

Therefore $50 - 46 = 4$ students passed

OR $0.08 \times 50 = 4$

17. A fire pump can theoretically lift water 350 feet but due to an imperfect seal and the effect of friction of the water, it only lifts the water 273 feet. What is the percent of the fire pump's efficiency?

$\%\ \text{efficiency} = \frac{273}{350} \times 100\% = 78\%$

18. If you buy a circular saw that normally sells for \$250 and you pay \$150, what percent **savings** do you get? (Hint: if you pay \$150, how much do you save?)

Savings = $250 - 150 = \$100$

% savings = $\frac{100}{250} \times 100\% = 40\%$

19. The cost of a certain car increased from \$58000 last year to \$67860 this year. What was the percent of increase?

Increase = $67860 - 58000 = \$9860$

% increase = $\frac{9860}{58000} \times 100\% = 17\%$

20. A salesperson has a commission rate of 6.5%. He sells \$56,480 worth of goods. What is his commission?

Commission = $0.065 \times 56480 = \$3671.20$

k h dk base unit d c m
m, g, L

**Complete each of the following conversions in the metric system.**

21. Change 46 mm to meters (3L)

0.046 m

22. Change 6.7 kg to milligrams (6R)

6,700,000 mg

23. Change 1.365 hg to milligrams (5R)

136,500 mg

24. Change 7 cL to liters (2L)

0.07L

25. Change 24 L to decaliters (1L)

2.4 dkL

26. Change 0.25 mm to centimeters (1L)

0.025 cm

**Solve the following questions with mixed measurements so that the answer has one unit.**

27. (7 km 2340 m) – (3 km 678 m) = (7000m + 2340m) – (3000m + 678m)
= 9340m – 3678m = 5662 m

28. 6 m + 125 cm = 600cm + 125cm = 725cm

29. (0.25 m 32.6 cm) x 2 = (25cm + 32.6cm) x 2 = 57.6cm x 2 = 115.2 cm

30. A 25 m 80 cm pipe is to be divided into four equal pieces. How long with each piece measure? $2500 + 80 = 2580\text{ cm}$

$$4\overline{)2580}\quad 645,\ 24,\ 18,\ -16,\ 20$$

645 cm

**Complete the following conversions in the imperial system.**

31. Change 80 oz to pounds

$80\text{ oz} \times \frac{1\text{ lb}}{16\text{ oz}} = 5\text{ lb}$

32. Change 72 qt to gallons

$72\text{ qt} \times \frac{1\text{ gal}}{4\text{ qt}} = 18\text{ gal}$

33. Change 57 yd to inches

$57\text{ yd} \times \frac{36\text{ in}}{1\text{ yd}} = 2052\text{ in}$

34. Change 102 in. to feet

$102\text{ in} \times \frac{1\text{ ft}}{12\text{ in}} = 8.5\text{ ft}$

or 8ft 6inches

**Change each of the following into feet and inches.**

35. 95 inches $= 84\text{ in} + 11\text{ in} = 7\text{ ft} + 11\text{ in} = 7\text{ ft } 11\text{ in}$

36. 78 inches $= 72\text{ in} + 6\text{ in} = 6\text{ ft} + 6\text{ in} = 6\text{ ft } 6\text{ in}$

**Solve the following questions with mixed measurements so that the answer has one unit.**

37. (4 lb 11 oz) + (10 lb 5 oz)

$= (4 \times 16\text{oz} + 11\text{oz}) + 10 \times 16 + 5\text{oz}$

$= 75\text{oz} + 165\text{oz} = 240\text{ oz}$

or 15 lb

38. (46 ft 6 in) – (10 ft 9 in)

$(46 \times 12 + 6) - (10 \times 12 + 9)$

$= 558\text{in} - 129\text{in} = 429\text{ in}$

39. (12 ft 3 in) x 3

$(12 \times 12\text{in} + 3\text{in}) \times 3 = 147\text{in} \times 3 = 441\text{ in}$

40. (6 ft 6 in) ÷ 3

$(6 \times 12 + 6\text{ in}) \div 3$

$= 78\text{in} \div 3 = 26\text{ in}$

**Complete the following conversions between the metric and imperial systems. (Round to two decimal places if necessary.)**

41. Change 7 kg to pounds

$7\text{kg} \times \frac{2.2\text{ lb}}{1\text{ kg}} = 15.4\text{ lb}$

or $7\text{kg} \times \frac{1\text{ lb}}{0.454\text{ kg}} = 15.42\text{ lb}$

42. Change 65 cm to inches

$65\text{cm} \times \frac{1\text{ in}}{2.54\text{ cm}} = 25.59\text{ in}$

or $65\text{cm} \times \frac{0.394\text{ in}}{1\text{ cm}} = 25.61\text{ in}$

43. Change 2 L to quarts

$2\text{L} \times \frac{1.06\text{ qt}}{1\text{ L}} = 2.12\text{ qt}$

or $2\text{L} \times \frac{1\text{ qt}}{0.946\text{ L}} = 2.11\text{ qt}$

44. Change 8 meters to inches

$8\text{m} = 800\text{cm}$

$800\text{cm} \times \frac{1\text{in}}{2.54\text{cm}} = 314.96\text{ in}$

or $800\text{cm} \times \frac{0.394\text{ in}}{1\text{ cm}} = 315.2\text{ in}$

45. Change 8 mi to kilometers

$8\text{mi} \times \frac{1\ \text{km}}{0.62\ \text{mi}} = 12.90\text{km}$

or

$8\text{mi} \times \frac{1.61\ \text{km}}{1\ \text{mi}} = 12.88\text{km}$

46. Change 215 lb to kilograms

$215\text{lb} \times \frac{0.454\ \text{kg}}{1\ \text{lb}} = 97.61\ \text{kg}$

or

$215\text{lb} \times \frac{1\ \text{kg}}{2.2\ \text{lb}} = 97.73\ \text{kg}$

47. Change 15 °C to °F

$F = 1.8 \times 15 + 32$

$= 27 + 32 = 59\ °F$

48. Change 58.1 °F to °C

$C = \frac{5 \times 58.1 - 160}{9}$

$= \frac{290.5 - 160}{9}$

$= \frac{130.5}{9} = 14.5\ °C$

## Length

12 inches = 1 foot

3 feet = 1 yard

5280 feet = 1 mile

1760 yards = 1 mile

## Time

60 seconds = 1 minute

60 minutes = 1 hour

24 hours = 1 day

7 days = 1 week

## Weight

16 ounces = 1 pound

2000 pounds = 1 tonne

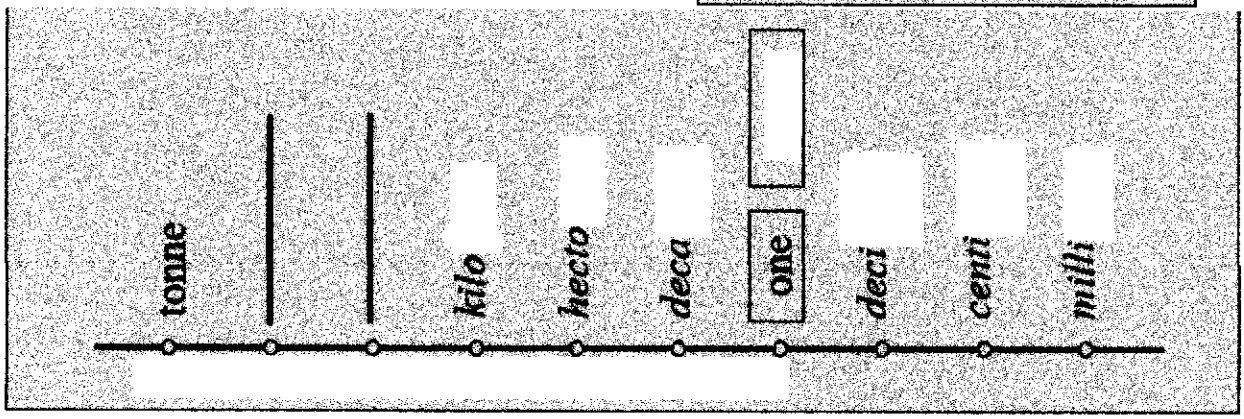
## Volume

8 fluid ounces = 1 cup

2 cups = 1 pint

2 pints = 1 quart

4 quarts = 1 gallon




| | U.S. Customary to Metric | Metric to U.S. Customary |
|---|---|---|
| **Units of length** | 1 mile ≈ 1.61 kilometres<br>1 yard ≈ 0.914 metre<br>1 foot ≈ 0.305 metre<br>1 inch = 2.54 centimetres | 1 kilometre ≈ 0.62 mile<br>1 metre ≈ 1.09 yards<br>1 metre ≈ 3.28 feet<br>1 centimetre ≈ 0.394 inch |
| **Units of volume** | 1 gallon ≈ 3.79 litre<br>1 quart ≈ 0.946 litre | 1 litre ≈ 0.264 gallon<br>1 litre ≈ 1.06 quarts |
| **Units of weight** | 1 pound ≈ 0.454 kilogram<br>1 ounce ≈ 28.35 gram | 1 kilogram ≈ 2.2 pounds<br>1 gram ≈ 0.0353 ounce |

| U.S. Customary Measure (Alphabetical Order) | Standard Abbreviation |
|---|---|
| feet | ft |
| gallon | gal |
| inch | in. |
| mile | mi |
| ounce | oz |
| pound | lb |
| quart | qt |
| yard | yd |

| Metric Measure | Standard Abbreviation |
|---|---|
| centimetre | cm |
| gram | g |
| kilogram | kg |
| kilometre | km |
| litre | L |
| metre | m |
| millimetre | mm |

$$F = 1.8 \times C + 32$$

$$C = \frac{5 \times F - 160}{9}$$