

## Learning Skills, Room 120

### PNUR Math Concepts

No Calculators

Reduce all fractions to lowest terms

Use Conversion Chart for 22 – 23

1.  $3\frac{1}{3} \times \frac{1}{2} =$

2.  $7 - 2\frac{1}{3} =$

3.  $-2 - 3(-6) =$

4.  $(-3)(-2)(-6) =$

5.  $\frac{1}{3} \div \frac{1}{6} =$

6.  $\frac{2}{7} + \frac{1}{3} =$

7. Solve for  $X$ :  $\frac{X}{12} = \frac{25}{100}$

8. Convert to a percent:  $\frac{5}{6} = \underline{\quad} \%$

9. Convert to a percent  $\frac{27}{20} = \underline{\hspace{2cm}}$  %
10. Convert 40% to a fraction
11. Convert  $\frac{1}{3}$  % to a fraction
12. 9 is approximately 14% of what number?
13. Round 73.72 to the nearest tenth
14. If  $m = -3$  and  $m^3 + 2m = x$ , what is  $x$  ?
15. If  $x = 1.5$  and  $y = 2$ , solve for  $Z$  when  $Z = 2x + y$
16.  $6^2 - 3^2 =$
17.  $\sqrt{25} - \sqrt{16} =$
18. Joan's sweater cost \$31.50. How much will it cost her after the 6% PST and 5% GST are added?
19. An item is on sale for \$250, down from the regular price of \$325. What percentage is the reduction?

**Note: conversion chart at end of test.**

20. Convert  $92\text{ lbs}$  to  $\text{kgs}$ .
21. Convert  $59^{\circ}\text{ C}$  to  $F^{\circ}$
22. Convert  $129^{\circ}\text{ F}$  to  $C^{\circ}$
23. Convert  $5\text{ oz.}$  to  $L$
24. Convert  $125\text{ mg}$  to  $g$ .
25. Convert  $0.250\text{ L}$  to  $cc$ .
26. A patient is prescribed  $60\text{mg}$ . of a liquid medication. The med container indicates  $15\text{mg}$  per  $ml$ . How much medication should the patient receive?
27. The doctor ordered  $800\text{ mg}$  of medication by injection. The dosage is  $0.2\text{ g}$  per  $1\text{ ml}$ . How many  $ml$  should be injected?
28. A bottle contains  $400\text{ ml}$  of fluid. If  $60\%$  of it is consumed, how much is left?
29. You must prepare  $5L$  of a disinfectant that is  $20\%$  disinfectant and  $80\%$  water. How much water is required?
30.  $750\text{ mg}$ . of an antibiotic is ordered. How many  $0.25\text{ g}$  tablets should you give?
31. A patient needs  $900\text{ ml}$  of a  $0.6\%$  saline solution over a 3 hour period. How many  $ml$  per hour does she need?

### Conversion Factors

1kg (kg) = 1,000 grams (g)

1 gram (g) = 1,000 milligrams (mg)

1 kilogram (kg) = 2.2 pounds (lb)

1 litre (L) = 1,000 millilitres (ml)

1 millilitre (ml) = 1 cubic centimetre (cc)

1 fluid oz = 30 ml

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

$$F^{\circ} = \frac{9}{5} C^{\circ} + 32$$

### Answers

1.  $1\frac{3}{4}$

11.  $\frac{1}{300}$

21.  $138.2^{\circ} F$

2.  $4\frac{2}{3}$

12. 64

22.  $53.9^{\circ} F$

3. 16

13. 73.7

23. 0.15 L

4. -36

14. -33

24. 0.125 g

5. 2

15. 5

25. 250 cc

6.  $\frac{13}{21}$

16. 27

26. 4 mL

7.  $x = 3$

17. 1

27. 4 mL

8. 83%

18. \$34.97

28. 160 mL

9. 135%

19. 23%

29. 4.0L

10.  $\frac{2}{5}$

20. 41.8 kg

30. 3 tablets

31. 300 mL / hr

## PNUR Math Concepts Practice Test Answers/Working

$$1. \quad 3\frac{1}{2} \times \frac{1}{2} = \frac{7}{2} \times \frac{1}{2} = \frac{7}{4} = 1\frac{3}{4}$$

$$\begin{aligned} 2. \quad 7 - 2\frac{1}{3} &= 7 - \frac{7}{3} \\ &= \frac{21}{3} - \frac{7}{3} \\ &= \frac{14}{3} \\ &= 4\frac{2}{3} \end{aligned}$$

$$\begin{aligned} 3. \quad -2 - 3(-6) &= -2 - (3(-6)) \\ &= -2 - (-18) \\ &= -2 + 18 \\ &= 16 \end{aligned}$$

$$\begin{aligned} 4. \quad (-3)(-2)(-6) &= (6)(-6) \\ &= 6 \times (-6) \\ &= -36 \end{aligned}$$

$$5. \quad \frac{1}{3} \div \frac{1}{6} = \frac{1}{3} \times \frac{6}{1} = \frac{6}{3} = 2$$

$$6. \quad \frac{2}{7} + \frac{1}{3} = \frac{6+7}{21} = \frac{13}{21}$$

$$7. \quad \text{Solve for X: } \frac{x}{12} = \frac{25}{100}$$

$$100x = 12 \times 25$$

$$100x = 300$$

$$x = \frac{300}{100}$$

$$x = 3$$

[or: I know that  $\frac{25}{100}$  is  $\frac{1}{4}$ , so  $\frac{1}{4}$  of  $12 = 3$ ]

8. Convert to a percent:  $\frac{5}{6} = \underline{\hspace{2cm}}\%$

$$6 \overline{)5} = 83\%$$

9. Convert to a percent:  $\frac{27}{20} = \underline{\hspace{2cm}}\%$

$$\frac{27}{20} \times \frac{x}{100} = 20x = 2700; \quad 20 \overline{)2700} = 135\%$$

10. Convert 40% to a fraction:  $\frac{40}{100} = \frac{4}{10} = \frac{2}{5}$

11. Convert  $\frac{1}{3}\%$  to a fraction:

$$\frac{\frac{1}{3}}{100} = \frac{1}{3} \div 100 = \frac{1}{3} \times \frac{1}{100} = \frac{1}{300}$$

12. 9 is approximately 14% of what number?

$$\frac{9}{x} = \frac{14}{100}$$

$$14x = 900$$

$$x = \frac{900}{14} = 14 \overline{)900}$$

$$x = 64$$

13. Round 73.72 to the nearest tenth = 73.7

14. If  $m = -3$ , and  $m^3 + 2m = x$ , what is  $x$ ?

$$-3^3 + (2 \times -3) = x$$

$$-27 - 6 = -33$$

15. If  $x = 1.5$  and  $y = 2$ , solve for  $z$  when  $z = 2x + y$

$$z = 2(1.5) + 2$$

$$z = 3 + 2$$

$$z = 5$$

16.  $6^2 - 3^2 = 6.6 - 3.3$   
 $= 36 - 9$   
 $= 27$

17.  $\sqrt{25} - \sqrt{16} = 5 - 4$   
 $= 1$

18. Joan's sweater is priced at \$31.50. How much will it cost her after the 6% PST and 5% GST are added

$$\$31.50 \times .06 = 1.89$$

$$\$31.50 \times .05 = \underline{1.58}$$

$$3.47$$

$$\$31.50 + 3.47 = \$34.97$$

19. An item is on sale for \$250, down from the regular price of \$325. What percentage is the reduction?

$$325 - 250 = 75$$

$$\frac{75}{325} = \frac{x}{100}$$

$$325x = 7500$$

$$x = \frac{7500}{325}$$

$$= 23\%$$

20. Convert 92 lbs. to kgs

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

$$92 \div 2.2 \text{ lbs} = 41.8 \text{ kgs}$$

21. Convert  $59^{\circ}C$  to  $F^{\circ}$

$$F^{\circ} = \frac{9}{5}C^{\circ} + 32^{\circ}$$

$$\frac{9}{5}(59^{\circ}) + 32^{\circ}$$

$$106.2^{\circ}F + 32^{\circ} = 138.2^{\circ}F$$

22. Convert  $129^{\circ}F$  to  $C^{\circ}$

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

$$C^{\circ} = \frac{5}{9}(129 - 32)$$

$$C^{\circ} = \frac{5}{9(97)}$$

$$C^{\circ} = \frac{5}{9} \times \frac{97}{1}$$

$$C^{\circ} = \frac{485}{9}$$

$$= C^{\circ} = 53.9^{\circ}C$$

23. Convert 5 oz. to L

$$1\text{oz.} = 30\text{mL}, 1\text{L} = 1000\text{mL}$$

$$= 5\text{oz.} = 30 \times 5$$

$$= 150\text{mL}$$

$$= 0.15\text{mL}$$

(move the decimal 3 places to the left: 3 decimal places = thousands)

24. Convert 125 mg. to g.

$$125\text{ mg.} = x\text{ g.}$$

$$1\text{ g} = 1000\text{ mg.}, \text{ so divide } 125 \text{ by } 1000: \frac{125}{1000} = 0.125\text{g}$$

25. Convert 0.25L to cc

$$0.25\text{L} = x\text{ cc.}$$

$$1\text{L} = 1000\text{ mL}, \text{ so } 0.25\text{L} = 250\text{ mL}$$

26. A patient is prescribed 60 mg of a liquid medication. The container indicates 15 mg per mL. How much medication should the patient receive?

$$60\text{ mg.} = x\text{ mL}$$

$$15\text{ mg.} = 1\text{ mL}$$

$$\text{So } 60\text{ mL is } \frac{60}{15} = 4\text{ mL}$$

27. The doctor ordered 800 mg. of medication by injection. The dosage is 0.2 g per 1 mL. How many mL should be injected?



$$800 \text{ mg} = x \text{ mL}$$

$$0.2 \text{ g} = 1 \text{ mL} = 200 \text{ mg} = 1 \text{ mL}$$

$$800 \text{ mg} = x \text{ mL}$$

$$\frac{800}{200} = 4 \text{ mL}$$

28. A bottle contains 400 mL of fluid. If 60% of it is consumed, how much is left?

$$100\% - 60\% = 40\%$$

$$400 \text{ mL} \times 40\% = x \text{ mL}$$

$$400 \times .4 = 160 \text{ mL}$$

29. You must prepare 5L of a disinfectant solution that is 20% disinfectant and 80% water. How much water is required?

$$80\% \times 5L = xL$$

$$8 \times 5 = 4.0L$$

30. 750 mg of antibiotic is ordered. How many 0.25g tablets of the antibiotic should you give?

$$1000 \text{ mg} = 1 \text{ g}$$

$$750 \text{ mg} = .75 \text{ g}$$

$$x \times .25 \text{ g} = .75 \text{ g} = \frac{75}{25} = 3$$

31. A patient needs 900 mL of a 0.6%\* saline solution over a 3-hour period. How many mL per hour does she need? *\*Note the 0.6% information is not relevant*

$$x = \text{ml} / \text{hr}$$

$$3x = 900 \text{ mL}$$

$$x = \frac{900}{300 \text{ mL} / \text{hr}}$$

$$x = 300 \text{ mL} / \text{hr}$$