

## Asperheim: Introduction to Pharmacology, 12th Edition

### Chapter 1: Basic Math Review

#### Test Bank

#### MULTIPLE CHOICE

1. Subtracting 0.025 from 0.10 results in a difference of:
  - a. .0125
  - b. 1.25
  - c. 0.125
  - d. 0.075

ANS: D

	Feedback
<b>A</b>	This is an addition of the numbers with the decimal points not aligned.
<b>B</b>	This is an addition of the numbers with the decimal points not aligned.
<b>C</b>	This is a sum of the numbers.
<b>D</b>	Aligning the decimal points and subtracting results in a difference of 0.075.

DIF: Cognitive Level: Apply

REF: Page 8

2. A temperature of 104° F converts to a Celsius temperature of:
  - a. 40° C
  - b. 75.6° C
  - c. 129.6° C
  - d. 72° C

ANS: A

	Feedback
<b>A</b>	$104 - 32 = 72$ $72 \div 5 = 360$ $360/9 = 40$
<b>B</b>	This answer (75.6° C) is the result of adding 32 to the Fahrenheit temperature instead of subtracting it.
<b>C</b>	This answer (129.6° C) is the result of multiplying by 9/5 instead of 5/9.
<b>D</b>	This answer (72° C) is the result of subtracting 32 from the Fahrenheit temperature without multiplying by the fraction 5/9.

DIF: Cognitive Level: Apply

REF: Page 13

3. What is the lowest common denominator among the fractions  $\frac{1}{3}$ ,  $\frac{1}{2}$ , and  $\frac{1}{4}$ ?
- 12
  - 6
  - 5
  - 24

ANS: A

	<b>Feedback</b>
<b>A</b>	The smallest number that is divisible by all three denominators (3, 2, 4) is 12.
<b>B</b>	Four does not divide evenly into 6.
<b>C</b>	None of the denominators divide evenly into 5.
<b>D</b>	Although all of the denominators divide evenly into 24, it is not the smallest common denominator.

DIF: Cognitive Level: Remember      REF: Page 4

4. Dividing 0.75 by 0.25 results in a quotient of:
- 30
  - 3.00
  - 0.1875
  - 0.50

ANS: B

	<b>Feedback</b>
<b>A</b>	This answer is the result of dividing 0.75 by 0.025.
<b>B</b>	After moving the decimal places over two positions in the divisor and the dividend, then proceeding with division, the result is the whole number 3.
<b>C</b>	This is the product of the two numbers, not the quotient.
<b>D</b>	This is the result of subtracting 0.25 from 0.75.

DIF: Cognitive Level: Apply      REF: Page 9

5. One centimeter is equal to how many millimeters?
- 100 mm
  - 1000 mm
  - $\frac{1}{10}$  mm
  - 10 mm

ANS: D

	<b>Feedback</b>
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<b>A</b>	1 cm = 10 mm, not 100 mm.
<b>B</b>	1 cm = 10 mm, not 1000 mm.
<b>C</b>	1 cm = 10 mm, not 1/10 mm.
<b>D</b>	1 cm = 10 mm.

DIF: Cognitive Level: Remember

REF: Page 13

6. Eighteen is 30% of:
- 540
  - 60
  - 0.06
  - 54

ANS: B

	<b>Feedback</b>
<b>A</b>	This answer (540) is the result of multiplying 18 by 30. (This is not the correct way to determine percentage.)
<b>B</b>	$18 = 30\%x$ $18 = 0.30x$ $18/0.30 = x$ $18/0.30 = 60$
<b>C</b>	This answer (0.06) is the result of dividing 0.018 by 0.30. (This eliminates the step of moving the decimal to the right to create a divisor that is a whole number.)
<b>D</b>	This answer (54) is the result of multiplying 18 by 3 instead of dividing by 0.30.

DIF: Cognitive Level: Apply

REF: Page 11

7. The ratio 3:100 would properly be expressed in fraction form as:
- 0.003
  - 3/100
  - 100/3
  - 33 1/3%

ANS: B

	<b>Feedback</b>
<b>A</b>	This is decimal form and not expressed as a fraction.
<b>B</b>	Ratio indicates division, and the fraction 3/100 also represents the same operation of three parts of 100.
<b>C</b>	This fraction represents $100 \square 3$ .
<b>D</b>	This is percentage form and not a fraction.

8. Three teaspoons equal how many milliliters?
- 30 mL
  - 45 mL
  - 100 mL
  - 15 mL

ANS: D

	Feedback
<b>A</b>	30 mL = 6 teaspoons.
<b>B</b>	45 mL = 9 teaspoons.
<b>C</b>	100 mL = 20 teaspoons.
<b>D</b>	1 teaspoon = 5 mL; 3 teaspoons = 15 mL.

9. In the proportion  $2.5 : x :: 500 : 600$ , the unknown is:
- 120,000
  - 40
  - 3
  - 2.08

ANS: C

	Feedback
<b>A</b>	This answer (120,000) is the result of multiplying the two terms on the right (500, 600) and dividing by the numeric term on the left (2.5).
<b>B</b>	This answer (-40) is the result of subtracting the two terms on the right (500, 600) and dividing by the numeric term on the left (2.5).
<b>C</b>	This answer (3) is the result of multiplying the means and the extremes and then dividing to find the unknown.
<b>D</b>	This answer (2.08) is the result of multiplying an extreme (2.5) by a mean (500) and dividing by the other extreme (600).

10. Expressed in Roman numerals, the number 2009 is:
- IIIV
  - MMIII
  - MMIX
  - IVMM

ANS: C

	Feedback
A	This Roman numeral is not consistent with the syntax for the numbering system.
B	This Roman numeral is not consistent with the syntax for the numbering system.
C	The symbols for 1000 (M) are added, making 2000, and the number for 1 (I) is subtracted from the number for 10 (X), giving 9.
D	This Roman numeral is not consistent with the syntax for the numbering system.

DIF: Cognitive Level: Apply

REF: Page 1 and 2

### PROBLEM

1. Convert  $1/500$  to a decimal.

ANS:

0.002

$$1 \div 500 = 0.002$$

DIF: Cognitive Level: Apply

REF: Page 10

2. Convert 0.375 to a fraction.

ANS:

$3/8$

$$0.375 = 375/1000; \text{ reduced by dividing both numbers by } 125 = 3/8$$

DIF: Cognitive Level: Apply

REF: Page 10

3. Convert the following:  $293^\circ \text{ F} = x^\circ \text{ C}$ .

ANS:

$145^\circ \text{ C}$

$$(5/9)(293 - 32) = 145$$

DIF: Cognitive Level: Apply

REF: Page 13

4. Solve for  $x$  in the following proportion:  $1/4 : 6 :: 3 : x$ .

ANS:

72

$$6 \div 3 = 1/4x; 18 = 1/4x; (1/4)(18) = 72$$

DIF: Cognitive Level: Apply

REF: Page 12

5. Change  $4 \frac{3}{4}$  to an improper fraction.

ANS:  
19/4  
 $(4 = 16/4) + 3/4 = 19/4$

DIF: Cognitive Level: Apply REF: Page 3

6. Solve for  $x$  in the following equivalent fraction:  $100/x = 50/25$

ANS:  
 $x = 50$   
 $100 \square 25 = 2500; 50 \square x = 50x; 2500/50 = 50$

DIF: Cognitive Level: Apply REF: Page 4

7. Solve for  $x$  in the following proportion:  $0.25 : 10 :: x : 1$

ANS:  
0.025  
 $10x = (1 \square 0.25); x = 0.25/10 = 0.025$

DIF: Cognitive Level: Apply REF: Page 12

8. What is 1/4% of 20?

ANS:  
0.05  
 $1/4\% = 0.0025; 0.0025 \square 20 = 0.05$

DIF: Cognitive Level: Apply REF: Page 10 and 11

9. Convert the following units:  $143 \text{ lb} = x \text{ kg}$

ANS:  
65 kg  
 $1 \text{ kg} = 2.2 \text{ lb}; 143/2.2 = 65$

DIF: Cognitive Level: Apply REF: Page 14

10. Convert 16/100 to a decimal.

ANS:  
0.16  
 $16 \square 100 = 0.16$

DIF: Cognitive Level: Apply REF: Page 10

11. Write CXLVII as an Arabic numeral.

ANS:

147

$C = 100, X = 10, L = 50, V = 5, I = 1$

$100 + (50 - 10) + (5 + 2)$

DIF: Cognitive Level: Apply

REF: Page 1 and 2

12. Solve for  $x$  in the following proportion:  $1/5 : 1 :: 20 : x$

ANS:

100

$1/5x = 20 \square 1; x = 5 \square 20$

DIF: Cognitive Level: Apply

REF: Page 12

13. Solve for  $x$  in the following equivalent fraction:  $x/16 = 6/32$

ANS:

$x = 3$

$16 \square 6 = 96; 32 \square x = 32x$  (Dividing both sides by 32 yields  $x = 3$ .)

DIF: Cognitive Level: Apply

REF: Page 4

14. Convert the following units: 1 tablespoon =  $x$  mL

ANS:

15 mL

1 teaspoon = 5 mL; 1 tablespoon = 3 teaspoons

$3 \square 5 = 15$

DIF: Cognitive Level: Apply

REF: Page 14

15. Convert the following:  $38^\circ \text{C} = x^\circ \text{F}$

ANS:

$100.4^\circ \text{F}$

$(9 \times 38 + 160)/5 = 100.4$

DIF: Cognitive Level: Apply

REF: Page 13

16. Write MDCCLXXVI as an Arabic numeral.

ANS:

1776

$M = 1000, D = 500, C = 100, L = 50, X = 10, V = 5, I = 1$

$1000 + (1000 - 300) + (50 + 20) + (5 + 1)$

DIF: Cognitive Level: Apply

REF: Page 1

17. Find the lowest common denominator:  $1/3$ ,  $5/4$ ,  $3/5$

ANS:

$$\text{LCD} = 60$$

$3 \square 4 = 12$ ;  $12 \square 5 = 60$  (Sixty is the smallest number divisible by all three denominators.)

DIF: Cognitive Level: Apply

REF: Page 4

18. Convert  $1/8$  to a decimal.

ANS:

$$0.125$$

$$1 \square 8 = 0.125$$

DIF: Cognitive Level: Apply

REF: Page 10

19. Three is what percent of 5?

ANS:

$$60\%$$

3 is  $3/5$  of 5; 3 divided by 5 = 0.60 or 60%

DIF: Cognitive Level: Apply

REF: Page 11

20. Solve for  $x$  in the following proportion:  $9 : 6 :: x : 30$

ANS:

$$45$$

$$6x = 9 \square 30; 6x = 270; 270 \square 6 = 45$$

DIF: Cognitive Level: Apply

REF: Page 12

21. Solve for  $x$  in the following equivalent fraction:  $3/6 = x/12$

ANS:

$$x = 6$$

$3 \square 12 = 36$ ;  $6 \square x = 6x$  (Dividing both sides of  $36 = 6x$  by 6 yields  $6 = x$ .)

DIF: Cognitive Level: Apply

REF: Page 4

22. Write 1888 as a Roman numeral.

ANS:

MDCCCLXXXVIII

$M = 1000$ ,  $D = 500$ ,  $C = 100$ ,  $L = 50$ ,  $X = 10$

$$1000 + 500 + 100 + 100 + 100 + 50 + 10 + 10 + 10 + 5 + 1 + 1 + 1$$

DIF: Cognitive Level: Apply

REF: Page 1 and 2



23. Change  $15 \frac{3}{8}$  to an improper fraction.

ANS:  
 $\frac{123}{8}$   
 $(15 = 120/8) + 3/8$

DIF: Cognitive Level: Apply REF: Page 3

24. Convert the following:  $68^\circ \text{F} = x^\circ \text{C}$

ANS:  
 $20^\circ \text{C}$   
 $(5/9)(68 - 32) = 20$

DIF: Cognitive Level: Apply REF: Page 13

25. Find the lowest common denominator:  $1/8, 1/4, 1/32$

ANS:  
LCD = 32  
 $8 \square 4 = 32$  (Thirty-two is the smallest number divisible by all three denominators.)

DIF: Cognitive Level: Apply REF: Page 4

26. Convert the following units:  $30 \text{ mL} = x \text{ fl oz}$

ANS:  
1 fl oz  
1 fl oz = 30 mL

DIF: Cognitive Level: Apply REF: Page 14

27. What percent of 25 is 5?

ANS:  
20%  
5 is  $1/5$  of 25; 1 divided by 5 = 0.20 or 20%

DIF: Cognitive Level: Apply REF: Page 11

28. Convert 6.25 to a fraction.

ANS:  
 $\frac{25}{4}$  or  $6 \frac{1}{4}$   
0.25 is the same as  $\frac{25}{100}$ ; dividing the numerator and denominator by 25 =  $\frac{1}{4}$

DIF: Cognitive Level: Apply REF: Page 10

29. Solve for  $x$  in the following proportion:  $5 : 25 :: x : 100$

ANS:

20

$$25x = 5 \square 100; x = 500/25$$

DIF: Cognitive Level: Apply

REF: Page 12