

DEV 108 Skill Review Packet

This Skill Review Packet contains a small sample of the skills and concepts that are covered in DEV 108.

Completing the problems in this packet is one way for you to practice your math skills so that you can experience success in your next math class.

You can download additional worksheets for various skills from the Tutoring and Learning website at tlc.sinclair.edu

Keep in mind that reviewing your skills for 10-15 minutes a day for at least 4 days a week will help to maintain the information presented in DEV 108.

The following concepts and skills are covered in this Skill Review Packet:

- Number properties
- Arithmetic Review
- Integers
- Expressions- Simplify and Evaluate
- Equations- Translate and Solve
- Geometry Formulas
- Applications - Arithmetic, Geometry and Equations
- Exponent Rules
- Polynomials- Multiply and Factor

Directions: Complete each section of problems. Check your answers at the back of the packet. Review any skills that were difficult or unfamiliar. If additional practice is needed or desired, additional worksheets and information can be found at tlc.sinclair.edu

NUMBER PROPERTIES

Exercise 1 - Directions: Match the examples on the left with the correct property listed on the right.

1) _____ $12 + 3 = 3 + 12$

2) _____ $24 + (-24) = 0$

3) _____ $\frac{3}{5} \cdot \frac{5}{3} = 1$

4) _____ $16 + 0 = 16$

5) _____ $(3 \cdot 4) \cdot 5 = 3 \cdot (4 \cdot 5)$

6) _____ $30 \cdot 1 = 30$

7) _____ $7 \cdot 8 = 8 \cdot 7$

8.) _____ $9 + (3 + 2) = (9 + 3) + 2$

9.) _____ $9 \cdot 0 = 0$

10.) _____ $7(9 + 5) = 7 \cdot 9 + 7 \cdot 5$

- a.) Additive Identity Property
- b.) Additive Inverse Property
- c.) Associative Property of Addition
- d.) Associative Property of Multiplication
- e.) Commutative Property of Addition
- f.) Commutative Property of Multiplication
- g.) Distributive Property
- h.) Multiplicative Identity Property
- i.) Multiplicative Inverse Property
- j.) Zero Factor Property

ARITHMETIC REVIEW

Exercise 2 - FRACTIONS - Directions: Change each mixed or whole number to an improper fraction.

a) $4\frac{4}{5}$

b) $2\frac{1}{3}$

c) $5\frac{1}{2}$

d) $3\frac{5}{6}$

3) 14

Exercise 3 - FRACTIONS - Directions: Change each fraction or mixed number to a decimal value.

a) $8\frac{3}{5}$

b) $\frac{3}{8}$

c) $10\frac{1}{2}$

d) $\frac{5}{8}$

Exercise 4 - FRACTIONS - Directions: Find the product for each. Remember to reduce to lowest terms.

a) $\frac{3}{8} \cdot \frac{4}{9}$

b) $\frac{2}{10} \cdot \frac{5}{12}$

c) $4\frac{3}{5} \cdot 15$

d) $6\frac{1}{3} \cdot 3\frac{3}{4}$

Exercise 5 - FRACTIONS - Directions: Find the quotient for each. Remember to reduce to lowest terms.

a) $\frac{5}{6} \div \frac{5}{8}$

b) $\frac{2}{10} \div \frac{4}{14}$

c) $3\frac{3}{5} \cdot 5$

d) $8\frac{1}{4} \cdot 3\frac{3}{5}$

Exercise 6 - FRACTIONS - Directions: Find the sum each. Remember to reduce to lowest terms.

a) $\frac{2}{3} + \frac{5}{9}$

b) $\frac{3}{5} + \frac{1}{4}$

c) $\frac{3}{4} + 8$

d) $6\frac{3}{4} + 5\frac{2}{3}$

Exercise 7 - FRACTIONS - Directions: Find the difference for each. Remember to reduce to lowest terms.

a) $\frac{5}{9} - \frac{1}{6}$

b) $\frac{2}{3} - \frac{1}{4}$

c) $9 - 5\frac{3}{4}$

d) $8\frac{1}{6} - 3\frac{2}{3}$

Exercise 8 - DECIMALS - Directions: Find the sum or difference for each.

a) $2.37 + 0.4$

b) $0.876 + 22 + 0.7$

c) $6 - 1.89$

d) $0.563 - 0.4$

Exercise 9 - DECIMALS - Directions: Find the product for each.

a) $6.042 \cdot 0.03$

b) $14 \cdot 0.145$

c) $(0.04)^4$

d) $(1.2)^2$

Exercise 10 - DECIMALS - Directions: Find the quotient for each.

a) $2.4 \div 32$

b) $16.25 \div 25$

c) $12.54 \div 0.4$

d) $158 \div 0.79$

PERCENTS AND CONVERSIONS

Exercise 11 - Directions: Solve the following percent problems.

- a) Find 27% of 82 b) 33 is what percent of 150? c) 18 is 40% of what number?

Exercise 12 - Directions: Find the missing format for each value. Remember to reduce fractions to lowest terms.

Fraction	Decimal	Percent
	0.45	
		20%

SIGNED NUMBERS

Exercise 13 - Directions: Compare the values. Use $>$, $<$, or $=$.

- a) $5 \underline{\quad} -2$ b) $-7 \underline{\quad} 0$ c) $-1 \underline{\quad} -6$ d) $-8 \underline{\quad} -11$

Exercise 14 - Directions: Find the opposite of each value.

- a) $-2 = \underline{\quad}$ b) $15 = \underline{\quad}$ c) $-24 = \underline{\quad}$ d) $56 = \underline{\quad}$

Exercise 15 - Directions: Find the absolute value for each.

- a) $|-8| = \underline{\quad}$ b) $|13| = \underline{\quad}$ c) $|-5| = \underline{\quad}$

Exercise 16 - Directions: Find the sum for each.

- a) $-3.4 + 2.7$ b) $-5\frac{1}{2} + -8\frac{3}{4}$ c) $6 + -9$
d) $-5.3 + -11.9$ e) $12 + -8$ f) $10\frac{3}{4} + -11\frac{5}{8}$

Exercise 17 - Directions: Find the difference for each.

a) $-3.6 - 4.4$

b) $8 - -3$

c) $-6\frac{3}{4} - -3\frac{7}{8}$

d) $-3 - 5$

e) $7.2 - 12.9$

f) $-23\frac{1}{2} - 14\frac{1}{4}$

Exercise 18 - Directions: Find the product or quotient for each.

a) $3\frac{1}{2} \cdot -8\frac{1}{4}$

b) $-5.7 \cdot -6$

c) $-21 \cdot -3$

d) $2\frac{1}{2} \cdot -6 \cdot -9$

e) $-10 \cdot 5 \cdot 1 \cdot -3 \cdot -2$

f) $-27 \div -3$

ORDER OF OPERATIONS

Exercise 19 - Directions: Solve each. Remember to follow the correct order of operations and to apply the rules that go with signed numbers.

a) $16 + -3(4) + (0.5)^2$

b) $8 - 12 + -7 \cdot \frac{1}{3}(9 + 18 - 3^2)$

c) $-3 - 3(-5) + 7^2 + (\frac{1}{2})^2$

d) $2^2 - 5 + 4^2 + 5^{-2}$

e) $\frac{(-4)(6) \div 2}{2^3 - 8}$

f) $5(3 + |-7|)^2$

g) $|8 - 6| + 5|7 - 9|$

h) $-2|-14| + [20 - 2|12-19|]$

EXPRESSIONS

Exercise 20 - Directions: Simplify by combining like terms

a) $14x + 3x - 7y - 8x$

b) $2xy + 3yx - 14yx - 8xy$

c) $3x^2 + 4x - 7x^2$

d) $16a - 18a + 3b + 3\frac{1}{2}a - 6\frac{1}{2}b$

e) $-(2y - 4) + 8y$

f) $-9(3x + 2) + 2y(3 + 2) - x$

Exercise 21 - Directions: Evaluate each. Let $x = 5$, $y = -2$, and $z = \frac{1}{2}$

a) $3(5y + 3x)$

b) $10z + 7y - 3xz$

c) $\frac{4xy + yz}{xz}$

d) $3y^2 + 4z - x$

e) $2x^2 + 3y - 6z$

f) $x^2 + (y^2)(z^2)$

EQUATIONS

Exercise 22 - Directions: Solve each equation.

a) $5 + x = 19$

b) $5.7 = x - 6.3$

c) $x + 4 = 7\frac{1}{2}$

d) $-7 - 5x = -12$

e) $4m + 5 = 22$

f) $3x - 10 = 11$

g) $2\frac{1}{2} + 8x = 20\frac{3}{4}$

h) $5 + 6x = 30$

i) $8y - 6y + 4y + 12 = 8 - 14$

j) $-3 - 5 = 4 - 3(m - 1) + 8m$

k) $3(x - 4) = 7 + 5(2x + 3)$

Exercise 23 - Directions: Translate and solve.

a) The sum of a number and 17 is 43. Find the number.

b) The product of a number and 3 is decreased by 4, the result is 17. Find the number.

c) The sum of 2 numbers is 42. One number is 4 more than the other. Find both numbers.

d) The quotient of a number and 5 is 12. Find the missing value.

e) The sum of 2 numbers is 73. One number is 7 more than the other. Find the larger number.

GEOMETRY FORMULAS

Exercise 24 - Directions: Match the formulas to their correct descriptions.

- | | | | |
|----|---|-------|---------------------------------------|
| a) | 3.14 or $\frac{22}{7}$ | _____ | Area of a circle |
| b) | $C = 2\pi r$ or $C = d\pi$ | _____ | Area of a rectangle |
| c) | $A = s^2$ | _____ | Area of a square |
| d) | $P = 2L + 2W$ | _____ | Area of a triangle |
| e) | $P = 4s$ | _____ | Circumference of a circle |
| f) | $P = a + b + c$ | _____ | Perimeter of a rectangle |
| g) | $A = \frac{1}{2}L \cdot W$ or $A = \frac{1}{2}bh$ | _____ | Perimeter of a square |
| h) | $V = \pi r^2 h$ | _____ | Perimeter of a triangle |
| i) | $V = L \cdot W \cdot H$ | _____ | Value for "pi" |
| j) | $A = \pi r^2$ | _____ | Volume of a cylinder |
| k) | $A = L \cdot W$ | _____ | Volume of a rectangular prism or cube |

APPLICATION PROBLEMS

Exercise 25 - Directions: Solve the following application problems.

- Diana saved \$21 on a new coat. If the discount was 15%, what was the original price of the coat?
- Alex can save 15% on his \$75 insurance bill if he puts in a security system. How much would he save by installing the security system?
- Find the circumference of a circle with a radius of 28 feet. (use $\frac{22}{7}$ for π)
- If the perimeter of a rectangle is 84 inches and the width is 12 inches, find the length.
- Find the volume of a rectangular box that measures 7 feet wide, 12 feet long, and $3\frac{1}{2}$ feet deep.
- Sam is twice as old as his sister, Sissy. If their combined ages total 9, how old are Sam and Sissy?
- Sara and Debbie have a total of 32 dolls between the two of them. If Sara has four more than three times the number of dolls that Debbie has, how many dolls do each of them have?

EXPONENT RULES

Exercise 26 - Directions: Find the product for each.

a) -8^2

b) $(-\frac{1}{5})^3$

c) -5^4

d) $(-9)^2$

e) $(-\frac{1}{2})^4$

f) $(-0.03)^2$

Exercise 27 - Directions: Evaluate each.

a) $x^3 \cdot x^5$

b) $y^6 \cdot y$

c) $3x^5y^3 \cdot 9xy$

d) $(-22x^2)(4x)(\frac{1}{2}x^3)$

e) $28x^2y^3(\frac{1}{2}xy)$

Exercise 28 - Directions: Evaluate each.

a) $(x^3)^2 =$

b) $(5x^3)^2 =$

c) $(\frac{5}{8}x^5y^7)^2 =$

d) $(-2x^8y^7z^9)^5 =$

e) $(8^2)^3 =$

Exercise 29 - Directions: Evaluate each.

a) $\frac{x^5}{x^3}$

b) $\frac{p^5}{p^9}$

c) $\frac{7a^2b}{14a^2b^2}$

d) $\frac{a^2b^3c^4}{a^2b^3c^4}$

e) $\frac{12a^9b^4}{16a^7b^7}$

f) $\frac{25x^6y^8}{-5x^3y^3}$

g) $\frac{12abc}{18a^2b}$

h) $\frac{4xyz}{12xyz}$

POLYNOMIALS

Exercise 30 - Directions: Find the product of each.

a) $(x + 3)(x + 7)$

b) $(a - 4)(a + 12)$

c) $(x - 15)(x - 5)$

Exercise 31 - Directions: Factor each.

a) $8x + 14y$

b) $4a + 8b$

c) $12r + 18s$

d) $5x^2 + 10x + 15$

e) $8a^2 + 16ab$

f) $18x^3 - 6x^2 + 14x$

g) $9x^3 + 6x^2y + 12xy$

h) $16x^3 - 8x^2 - 8x$

i) $x^2 + 4x + 3$

j) $x^2 + 4x - 12$

k) $x^2 - 11x + 24$

ANSWER KEY

Answers to Exercise 1

- 1) e $12 + 3 = 3 + 12$
2) b $24 + (-24) = 0$
3) i $\frac{3}{5} \cdot \frac{5}{3} = 1$
4) a $16 + 0 = 16$
5) d $(3 \cdot 4) \cdot 5 = 3 \cdot (4 \cdot 5)$

6) h $30 \cdot 1 = 30$
7) f $7 \cdot 8 = 8 \cdot 7$
8) c $9 + (3 + 2) = (9 + 3) + 2$
9) j $9 \cdot 0 = 0$
10) g $7(9 + 5) = 7 \cdot 9 + 7 \cdot 5$

Answers to Exercise 2

- a) $\frac{24}{5}$ b) $\frac{7}{3}$ c) $\frac{11}{2}$ d) $\frac{23}{6}$ e) $\frac{14}{1}$

Answers to Exercise 3

- a) 8.6 b) 0.375 c) 10.5 d) 0.625

Answers to Exercise 4

- a) $\frac{1}{6}$ b) $\frac{1}{12}$ c) 69 d) $23\frac{3}{4}$

Answers to Exercise 5

- a) $1\frac{1}{3}$ b) $\frac{7}{10}$ c) $\frac{18}{25}$ d) $2\frac{7}{24}$

Answers to Exercise 6

- a) $1\frac{2}{9}$ b) $\frac{17}{20}$ c) $8\frac{3}{4}$ d) $12\frac{5}{12}$

Answers to Exercise 7

- a) $\frac{7}{18}$ b) $\frac{5}{12}$ c) $3\frac{1}{4}$ d) $4\frac{8}{15}$

Answers to Exercise 8

- a) 2.77 b) 23.576 c) 4.11 d) 0.163

Answers to Exercise 9

- a) 0.18126 b) 2.03 c) 0.00000256 d) 1.44

Answers to Exercise 10

- a) 0.18882 b) 0.65 c) 31.35 d) 200

Answer to Exercise 11

- a) 22.14 b) 22% c) 45

Answer to Exercise 12

$\frac{9}{20}$ 0.45 45%

Answer to Exercise 13

- a) > b) < c) > d) >

Answers to Exercise 14

- a) 2 b) -15 c) 24 d) -56

Answers to Exercise 15

- a) 8 b) 13 c) 5

Answers to Exercise 16

- a) -0.7 b) $-14\frac{3}{4}$ c) -3
d) -8 e) -5.7 f) $-37\frac{3}{4}$

Answer to Exercise 17

- a) -8.0 b) 11 c) $-2\frac{3}{8}$
d) -17.2 e) 4 f) $-1\frac{3}{8}$

Answers to Exercise 18

- a) $-28\frac{7}{8}$ b) 34.2 c) 63
d) 135 e) -300 f) 9

Answers to Exercise 19

- a) 4.25 b) -46 c) $61\frac{1}{4}$ d) $\frac{3}{5}$
e) undefined f) $\frac{1}{20}$ g) 12 h) -22

Answers to Exercise 20

- a) $9x - 7y$ b) $-17xy$ c) $-4x^2 + 4x$
d) $1\frac{1}{2}a - 3\frac{1}{2}b$ e) $6y + 4$ f) $-28x + 10y - 18$

Answers to Exercise 21

- a) -15 b) -16.5 c) -16.4
d) 9 e) 41 f) 26

Answers to Exercise 22

- a) 14 b) 12.0 c) $3\frac{1}{2}$ d) 1
e) $\frac{17}{4}$ f) 7 g) $\frac{65}{32}$ h) $\frac{25}{6}$
I) -3 j) -3 k) $-\frac{34}{7}$

Answers to Exercise 23

- a) 26 b) 7 c) 19 and 23 d) 60 e) 40

Answers to Exercise 24

- | | |
|--|--|
| a) 3.14 or $\frac{22}{7}$ | <u>J</u> Area of a circle |
| b) $C = 2\pi r$ or $C = d\pi$ | <u>K</u> Area of a rectangle |
| c) $A = s^2$ | <u>C</u> Area of a square |
| d) $P = 2L + 2W$ | <u>G</u> Area of a triangle |
| e) $P = 4s$ | <u>B</u> Circumference of a circle |
| f) $P = a + b + c$ | <u>D</u> Perimeter of a rectangle |
| g) $A = \frac{1}{2}L \cdot W$ or $A = \frac{1}{2}bh$ | <u>E</u> Perimeter of a square |
| h) $V = \pi r^2 h$ | <u>F</u> Perimeter of a triangle |
| i) $V = L \cdot W \cdot H$ | <u>A</u> Value for "pi" |
| j) $A = \pi r^2$ | <u>H</u> Volume of a cylinder |
| k) $A = L \cdot W$ | <u>I</u> Volume of a rectangular prism or cube |

