

# Math 9 Final Exam Review

Sali/Drebit 2020

Ch. 1 - Square Roots and Surface Area

Ch. 2 - Exponents & Exponent Laws

Ch. 3 - Operations with Rational numbers (+fractions)

Ch. 4 - Linear Relations

Ch. 5 - Polynomials

Ch. 6 - Solving Linear Equations/Inequalities

Ch. 7 Proportional reasoning (ONLY scale factor and similar triangles)

Financial Literacy (simple budgeting,  $I=PRT$ ,  $Net=Gross-deductions$ , LIFE)

THERE IS NOT ENOUGH ROOM IN THIS BOOKLET FOR  
ALL YOUR WORK/CALCULATIONS  
Use separate paper where necessary

PLAN YOUR TIME...STUDY HARD....ALWAYS MAKE YOUR BEST EFFORT  
REMEMBER WHAT POPE BENDICT XVI SAID....

*"The world promises you comfort, but you were not made for  
comfort. You were made for greatness!"*

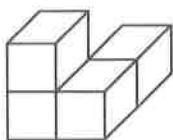
NAME: \_\_\_\_\_

MATH ROCKS!

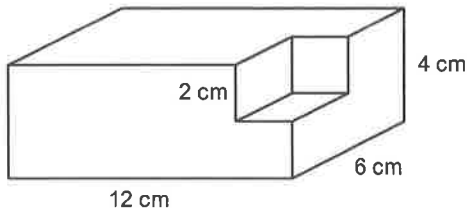


## Ch. 1 Review

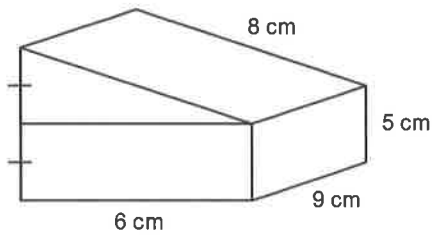
- List all the whole numbers between 63 and 101 that are perfect squares.
- Determine the value of  $\sqrt{0.16}$ .
- Determine the value of  $\sqrt{0.09}$ .
- Determine the value of  $\sqrt{0.0225}$ .
- Which fraction is a perfect square?
  - $\frac{9}{60}$
  - $\frac{12}{225}$
  - $\frac{9}{225}$
  - $\frac{3}{15}$
- Determine the value of  $\sqrt{\frac{72}{98}}$ .
- Name the two whole numbers whose squares are closest to 22.5.
- Name the two whole numbers whose squares are closest to  $\frac{525}{10}$ .
- Which decimal has a square root between 14 and 15?
  - 240.3
  - 169
  - 14.5
  - 204.5
- Which fraction has a square root between 3 and 4?
  - $\frac{52}{3}$
  - $\frac{61}{3}$
  - $\frac{37}{4}$
  - $\frac{79}{4}$
- Determine the value of  $\sqrt{77.2}$ , to the nearest tenth.
- Which square roots are correct to the nearest tenth?
  - $\sqrt{0.4} = 0.2$
  - $\sqrt{0.5} = 0.7$
  - $\sqrt{0.6} = 0.3$
  - $\sqrt{0.7} = 0.8$
  - $\sqrt{0.9} = 0.9$
- Estimate the value of  $\sqrt{0.15}$ , to the nearest tenth.
- Estimate the value of  $\sqrt{\frac{5}{11}}$ , to the nearest tenth.
- This composite object is made using centimetre cubes. Determine its surface area.



19. This object is made of a right rectangular prism of length 12 cm, width 6 cm, and height 4 cm. A cube of side length 2 cm has been removed from one corner. Determine the surface area of the object.



20. This object is composed of a right triangular prism on top of a right rectangular prism. Determine the surface area of the object.



## Ch. 1 Answers

1. 64, 81, 100
2. 0.4
3. 0.3
4. 0.15
5. C
6.  $\frac{6}{7}$
7. 4, 5
8. 7, 8
9. iv
10. iii
11. 8.8
12. ii, iv, v
13. 0.4
14. 0.7
15.  $18 \text{ cm}^2$
19.  $288 \text{ cm}^2$
20.  $351 \text{ cm}^2$

## Ch. 2 Review

### Chapter 2 - Powers and Exponents

1. Write each product as a power, then evaluate:

a)  $6 \cdot 6 \cdot 6 \cdot 6$

b)  $(-3)(-3)(-3)(-3)(-3)(-3)(-3)$

c)  $(10 \cdot 10 \cdot 10 \cdot 10 \cdot 10)$

2. Predict the sign of each answer

a)  $-(-3)^4$

b)  $(-5)^7$

c)  $-4^3$

d)  $-2^4$

3. Write each number in expanded form using powers of ten:

a) 52 000

b) 1760

4. Evaluate:

a)  $[3 \cdot (-2)^3 - 4]^2$

b)  $(-7 + 5)^2 - [4 + (-1)^3]^2$

c)  $[8^4 \mid (-4)^6 \cdot 2^0]^{10}$

5. Express as a single power:

a)  $6^5 \cdot 6^{11} \mid 6^8$

b)  $\frac{(-5)^6 \cdot (-5)^9}{(-5)^7 \cdot (-5)^5}$

6. A wheat field is 10000m wide. The area of the field is  $10^8 m^2$ .

a) Use the exponent laws to determine the length of the field.

b) What is the perimeter of the field?

7. Simplify, then evaluate each expression

a)  $(6^2)^8 \mid (6^4)^2$

b)  $(7^4 \mid 7^2)^3 + (3^5 \mid 3^2)^3$

c)  $[(-4)^3]^2 - [(-2)^4]^3 + [(-3)^2]^4$

Ch. 2 Review Answers:

1. a)  $6^4 = 1296$       b)  $(-3)^7 = 2187$       c)  $10^5 = 100\,000$

2. a) negative      b) negative      c) negative  
d) negative

3. a)  $5 \cdot 10^4 + 2 \cdot 10^3$       b)  $1 \cdot 10^3 + 7 \cdot 10^2 + 6 \cdot 10^1$

4. a) 784      b) -5      c) 1

5. a)  $6^8$       b)  $(-5)^3$

6. a)  $10^4 = 10\,000m$       b)  $40\,000m$

7. a)  $6^8 = 1\,679\,616$       b)  $7^6 + 3^9 = 137\,332$

c)  $(-4)^6 - (-2)^{12} + (-3)^8 = 6561$

NAME \_\_\_\_\_

## My "Laws of Exponents" Cheat Sheet

### ✓ Multiplying Powers with the Same Base

General Rule:  $x^a \bullet x^b = x^{a+b}$

Example:  $x^5 \bullet x^6 = x^{11}$

### ✓ Dividing Powers with the Same Base

General Rule:  $\frac{x^a}{x^b} = x^{a-b}$

Example:  $\frac{x^7}{x^4} = x^3$

### ✓ Finding a Power of a Power

General Rule:  $(x^a)^b = x^{a \bullet b}$

Example:  $(x^3)^6 = x^{18}$

### ✓ Negative Exponents

General Rule:  $x^{-a} = \frac{1}{x^a}$

Example:  $x^{-7} = \frac{1}{x^7}$

### ✓ Zero as an Exponent

General Rule:  $x^0 = 1$

Example:  $5^0 = 1$

## Ch. 3 Review

### Chapter 3 - Rational Numbers

1. Order the following rational numbers from least to greatest.. Show them on a number line.

$$3.12, -\frac{4}{3}, 0.9, -\frac{1}{2}, -0.4$$

2. Write 3 rational numbers between each pair of numbers.

a)  $\frac{1}{5}, \frac{7}{10}$

b) 0.8, 0.9

3. Evaluate the following:

a)  $1\frac{1}{2} + 3\frac{1}{3}$

b)  $4\frac{5}{6} + 1\frac{5}{12}$

c)  $\frac{5}{8} - \frac{7}{5}$

d)  $3\frac{5}{7} + 6\frac{9}{10}$

e)  $\frac{4}{7} \cdot \frac{2}{3}$

f)  $1\frac{3}{5} \cdot \left(2\frac{1}{2}\right)$

g)  $\frac{9}{11} \div \frac{7}{5}$

h)  $1\frac{2}{3} \div 3\frac{1}{2}$

i)  $1.2 \mid (0.6) + [6.3 + (3.4)]$

j)  $\frac{4}{5} \mid \frac{1}{2} + \frac{1}{6} + \frac{1}{6} + \frac{1}{4}$

k)  $(-0.2 + 0.9)^2 + 9.8 \mid (-0.7)$

4. A mountain climber descends from base camp at an average speed of 5.9 m/h. How far below base camp will the climber be after 3.75 h?



Ch. 3 Review Answers:

1.  $-\frac{4}{3}, -\frac{1}{2}, -0.4, 0.9, 3.12$

2. Possible answers; a)  $\frac{3}{10}, \frac{4}{10}, \frac{5}{10}, \frac{6}{10}$       b) 0.81, 0.82, 0.83, 0.84, 0.85

3. a)  $1\frac{5}{6}$       b)  $6\frac{1}{4}$       c)  $-\frac{31}{40}$       d)  $10\frac{43}{70}$

e)  $\frac{8}{21}$       f) 4      g)  $\frac{45}{77}$       h)  $\frac{10}{21}$

i) 4.9      j)  ~~$1\frac{211}{365}$~~       k) 13.51

4. The climber will be 22.125m lower than the base camp.

## Order of Operations (A)

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Solve each expression using the correct order of operations.

$$(-2) + 9 \times 10$$

$$(-5) - (-3) \times (-4)$$

$$(-7) - 9 \div 3$$

$$(-7) - 3^2$$

$$2 - 4^2$$

$$6^2 - (-8)$$

$$5 + (-9) \times 9$$

$$3 \times (8 + (-2))$$

$$(9 + 8) \times (-3)$$

$$2 + 3 \times 10$$

## Order of Operations (A) Answers

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Solve each expression using the correct order of operations.

$$\begin{aligned} &(-2) + \underline{9 \times 10} \\ &= \underline{(-2) + 90} \\ &= 88 \end{aligned}$$

$$\begin{aligned} &(-5) - \underline{(-3) \times (-4)} \\ &= \underline{(-5) - 12} \\ &= -17 \end{aligned}$$

$$\begin{aligned} &(-7) - \underline{9 \div 3} \\ &= \underline{(-7) - 3} \\ &= -10 \end{aligned}$$

$$\begin{aligned} &(-7) - \underline{3^2} \\ &= \underline{(-7) - 9} \\ &= -16 \end{aligned}$$

$$\begin{aligned} &2 - \underline{4^2} \\ &= \underline{2 - 16} \\ &= -14 \end{aligned}$$

$$\begin{aligned} &\underline{6^2} - (-8) \\ &= \underline{36 - (-8)} \\ &= 44 \end{aligned}$$

$$\begin{aligned} &5 + \underline{(-9) \times 9} \\ &= \underline{5 + (-81)} \\ &= -76 \end{aligned}$$

$$\begin{aligned} &3 \times \underline{(8 + (-2))} \\ &= \underline{3 \times 6} \\ &= 18 \end{aligned}$$

$$\begin{aligned} &\underline{(9 + 8)} \times (-3) \\ &= \underline{17 \times (-3)} \\ &= -51 \end{aligned}$$

$$\begin{aligned} &2 + \underline{3 \times 10} \\ &= \underline{2 + 30} \\ &= 32 \end{aligned}$$

## Order of Operations with Fractions (A)

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Solve each expression using the correct order of operations.

$$\left(\frac{3}{5} - \frac{1}{6}\right) \div \left(-\frac{1}{3}\right)$$

$$\left(\left(-\frac{1}{3}\right) + \frac{5}{8}\right) \div \frac{8}{9}$$

$$\left(\left(-\frac{1}{6}\right) - \left(-\frac{5}{8}\right)\right) \times \frac{1}{2}$$

$$\left(-\frac{1}{2}\right) - \left(-\frac{1}{5}\right)^2$$

$$\left(-\frac{2}{9}\right) \times \left(\left(-\frac{5}{9}\right) + \frac{5}{6}\right)$$

$$\left(-\frac{1}{8}\right) \times \left(-\frac{2}{3}\right) + \frac{5}{6}$$

## Order of Operations with Fractions (A)

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Solve each expression using the correct order of operations.

$$\begin{aligned} & \left( \frac{3}{5} - \frac{1}{6} \right) \div \left( -\frac{1}{3} \right) \\ &= \frac{13}{30} \div \left( -\frac{1}{3} \right) \\ &= -\frac{13}{10} \\ &= -1\frac{3}{10} \end{aligned}$$

$$\begin{aligned} & \left( \left( -\frac{1}{3} \right) + \frac{5}{8} \right) \div \frac{8}{9} \\ &= \frac{7}{24} \div \frac{8}{9} \\ &= \frac{21}{64} \end{aligned}$$

$$\begin{aligned} & \left( \left( -\frac{1}{6} \right) - \left( -\frac{5}{8} \right) \right) \times \frac{1}{2} \\ &= \frac{11}{24} \times \frac{1}{2} \\ &= \frac{11}{48} \end{aligned}$$

$$\begin{aligned} & \left( -\frac{1}{2} \right) - \left( -\frac{1}{5} \right)^2 \\ &= \left( -\frac{1}{2} \right) - \frac{1}{25} \\ &= -\frac{27}{50} \end{aligned}$$

$$\begin{aligned} & \left( -\frac{2}{9} \right) \times \left( \left( -\frac{5}{9} \right) + \frac{5}{6} \right) \\ &= \left( -\frac{2}{9} \right) \times \frac{5}{18} \\ &= -\frac{5}{81} \end{aligned}$$

$$\begin{aligned} & \left( -\frac{1}{8} \right) \times \left( -\frac{2}{3} \right) + \frac{5}{6} \\ &= \frac{1}{12} + \frac{5}{6} \\ &= \frac{11}{12} \end{aligned}$$

## Ch. 4 Review

1. This pattern of unit squares continues.  
Determine an equation that relates the number of unit squares,  $n$ , to the figure number,  $f$ .

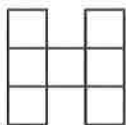


Figure 1

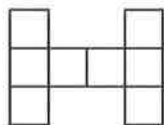


Figure 2

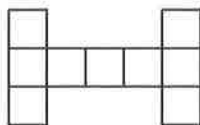


Figure 3

2. The pattern in this table continues. Write an equation that relates the term value to the term number.

<b>Term Number, <math>t</math></b>	1	2	3	4	5
<b>Term Value, <math>w</math></b>	5	8	11	14	17

3. The pattern in this table continues. Write an equation that relates the number of squares to the figure number.

<b>Figure Number, <math>f</math></b>	1	2	3	4	5
<b>Number of Squares, <math>s</math></b>	46	42	38	34	30

4. The cost of a taxi ride is the sum of a fixed cost of \$2.50 for the first kilometre, plus \$1.75 for each additional kilometre.
- Write an equation that relates the cost of a taxi ride,  $F$  dollars, to the distance travelled,  $n$ .
  - Determine the cost of a 28-km taxi ride.
5. Here is a pattern made with toothpicks. The pattern continues.



Figure 1

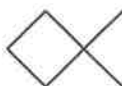


Figure 2

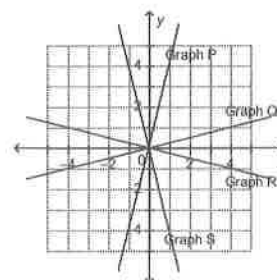


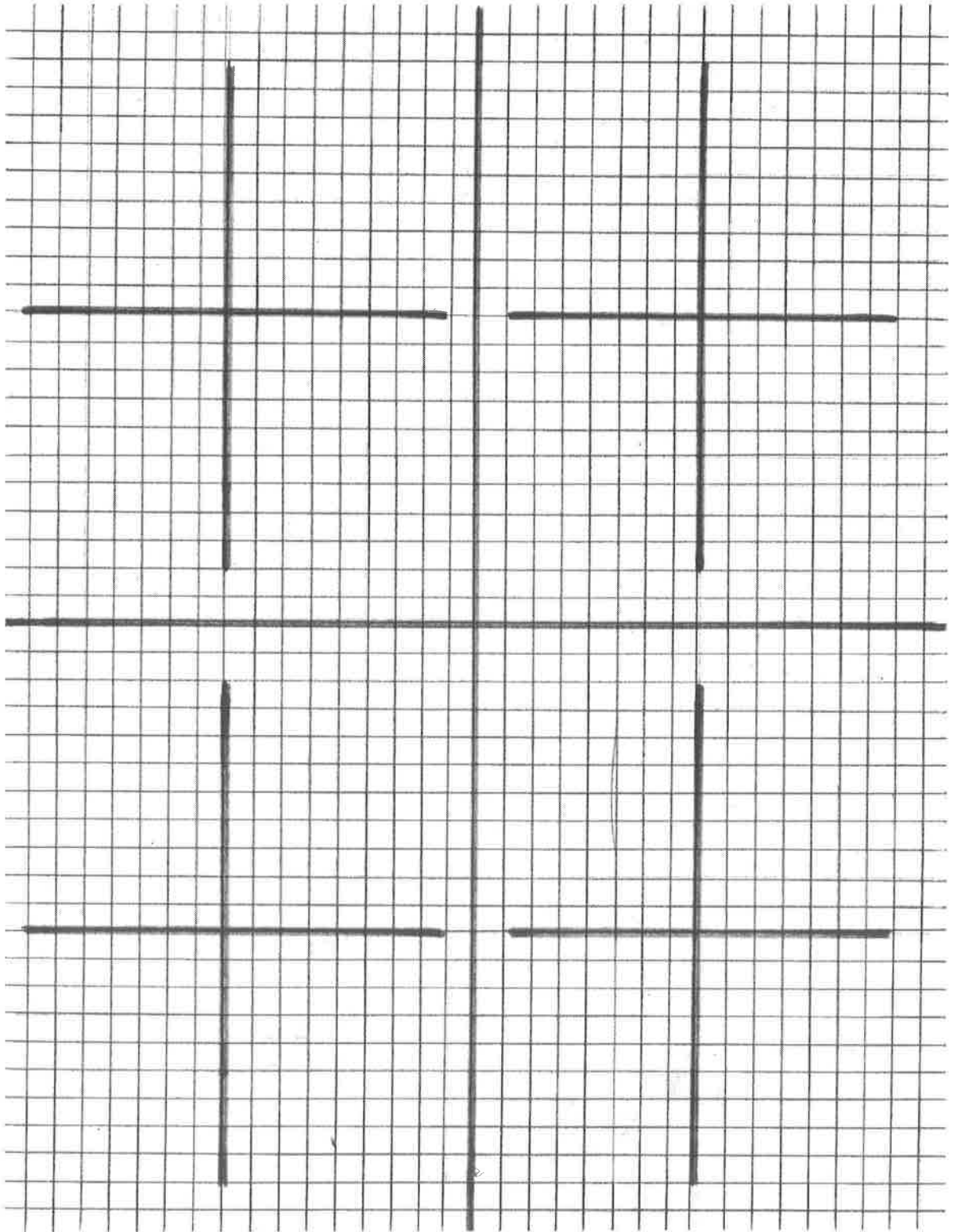
Figure 3

- Write an equation that relates the number of toothpicks,  $N$ , to the figure number,  $n$ .
  - How many toothpicks are needed for figure 80?
6. Circle which equations represent a linear relation?

i)  $y = 6x^2$     ii)  $y = 7x + 4$     iii)  $y = \frac{12}{x}$     iv)  $y + 3x = 12$

7. Create a table of values for the linear relation  $y = 4 - 4x$ , then graph the relation. Use values of  $x$  from 0 to 6.
8. Graph the following lines. Label the lines.    i)  $x + y = 4$     ii)  $x - y = -4$
9. Match each equation with a graph on the grid below.    i)  $y = -0.25x$     ii)  $y = 4x$   
iii)  $y = -4x$     iv)  $y = 0.25x$





**Ch. 4 ANSWERS**

1.  $n = 6 + f$

2.  $w = 3t + 2$

3.  $s = 50 - 4f$

6. ii and iv

20. x	0	1	2	3	4	5	6
y	4	0	-4	-8	-12	-16	-20

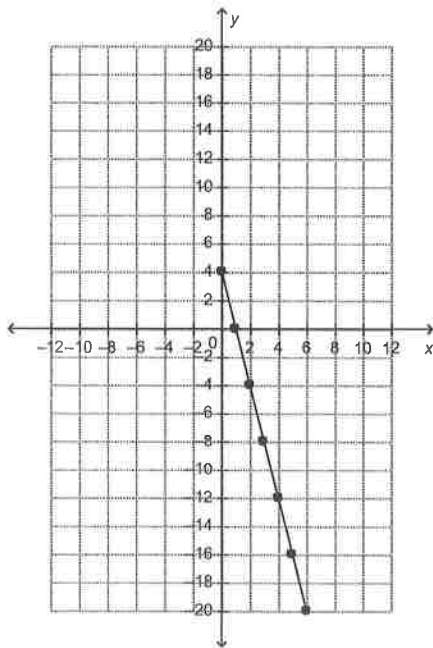
4. a)  $F = 2.5 + 1.75n$

b) \$51.50

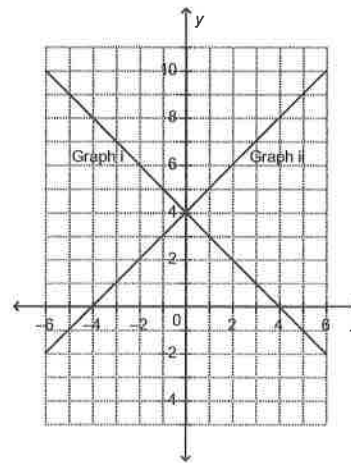
5. a)  $N = 2n + 2$

b) 162

7.



218.



9. Graph P:  $y = 4x$

Graph Q:  $y = 0.25x$

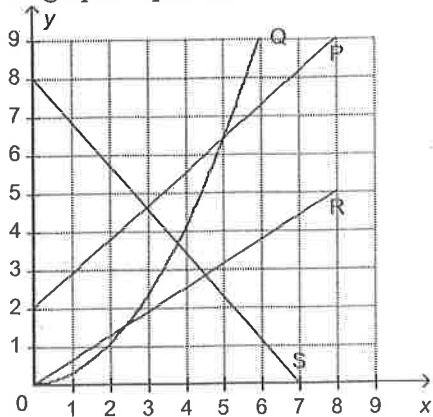
Graph R:  $y = -0.25x$

Graph S:  $y = -4x$



More Chp. 4...

3. Which graphs represent a linear relation?



- a. P only                      b. P, R, and S                      c. P and S                      d. P and R

4. Complete the table of values.

$y = 9 - 5x$

x	2	4	6	8
y				

a.

x	2	4	6	8
y	4	-1	-6	-11

c.

x	2	4	6	8
y	4	8	12	16

b.

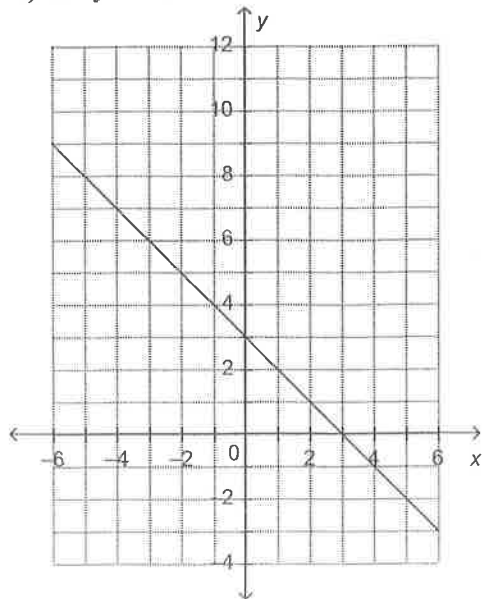
x	2	4	6	8
y	8	16	24	32

d.

x	2	4	6	8
y	-1	-11	-21	-31

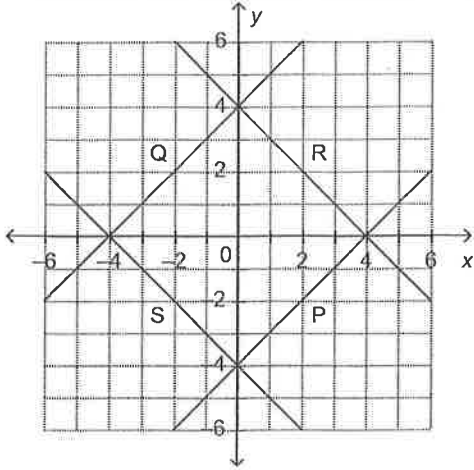
5. Which equation describes the graph?

- i)  $x + y = 3$
- ii)  $x - y = 3$
- iii)  $y - x = 3$
- iv)  $x + y = -3$



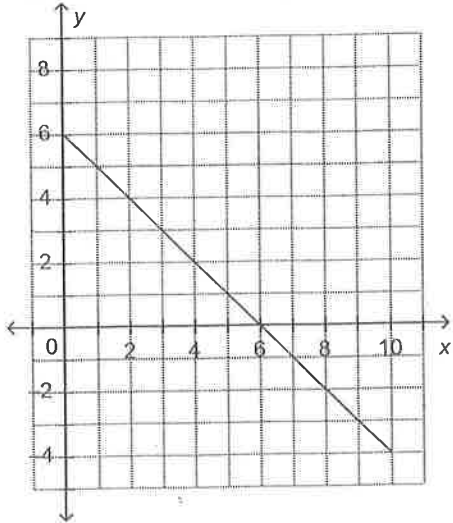
- a. i                      b. ii                      c. iii                      d. iv

6. Which line represents the equation  $x + y = 4$ ?



- a. Line R      b. Line S      c. Line P      d. Line Q

8. This graph represents a linear relation. Determine the value of  $y$  when  $x = 4$ .



- a. 0      b. 2      c. 10      d. 6

## Answer Section

### MULTIPLE CHOICE

3. ANS: B      PTS: 1      DIF: Easy      REF: 4.2 Linear Relations  
 LOC: 9.PR2      TOP: Patterns and Relations (Patterns)      KEY: Conceptual Understanding
4. ANS: D      PTS: 1      DIF: Moderate      REF: 4.2 Linear Relations  
 LOC: 9.PR2      TOP: Patterns and Relations (Patterns)      KEY: Procedural Knowledge
5. ANS: A      PTS: 1      DIF: Moderate  
 REF: 4.3 Another Form of the Equation for a Linear Relation      LOC: 9.PR1  
 TOP: Patterns and Relations (Patterns)      KEY: Procedural Knowledge
6. ANS: A      PTS: 1      DIF: Moderate  
 REF: 4.3 Another Form of the Equation for a Linear Relation      LOC: 9.PR1  
 TOP: Patterns and Relations (Patterns)      KEY: Procedural Knowledge
7. ANS: B      PTS: 1      DIF: Easy      REF: 4.4 Matching Equations and Graphs  
 LOC: 9.PR2      TOP: Patterns and Relations (Patterns)      KEY: Procedural Knowledge
8. ANS: B      PTS: 1      DIF: Easy  
 REF: 4.5 Using Graphs to Estimate Values      LOC: 9.PR2  
 TOP: Patterns and Relations (Patterns)      KEY: Procedural Knowledge

## Ch. 5 Review

1. Name the coefficients, variable and degree of each polynomial. Identify the constant term if there is one.

a)  $3x + 6$                       b)  $4n^2 + 2n + 5$                       c)  $19$

2. Simplify each polynomial.

a)  $2a - 4 - 9a + 5$                       b)  $3y - 2y^2 + 4 - y + 3y^2 - 8$   
 c)  $9c - 4cd + d - 6cd + 4 - 7c$                       d)  $4m^2 - 3n^2 + 2m - 3n + 2m^2 + n^2$

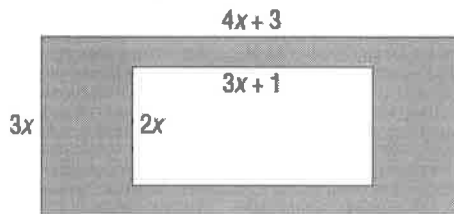
3. Add or subtract the polynomials:

a)  $(3s^2 - 2s + 6) + (7s^2 - 4s - 3)$                       b)  $(8x^2 - 5x + 2) - (5x^2 + 3x - 4)$   
 c)  $(9t - 4 + t^2) + (6 - 2t^2 + 5t)$                       d)  $(1 + 4n - n^2) - (3n - 2n^2 + 7)$   
 e)  $(6y^2 + 3xy - 2x^2 + 1) + (3x^2 - 2y^2 - 8 + 6xy)$   
 f)  $(8a - 6b - 3a^2 - 2ab) - (4b^2 - 7ab + 9b - 6)$

4. Determine each product or quotient.

a)  $9(3s^2 - 7s + 4)$                       b)  $\frac{35 - 49w^2 - 56w}{-7}$   
 c)  $7m(3m - 9)$                       d)  $(-12d^2 + 18d) \div (-6d)$

5. The diagram shows one rectangle inside another.



- a) Determine the area of the shaded region. Justify your answer.  
 b) Determine the area of the shaded region when  $x = 1.5\text{cm}$ .

Ch. 5 Answers:

1.

	Coefficients	Variable	Degree	Constant
a	3	$x$	1	6
b	4, 2	$n^2, n$	2	5
c	None	None	0	19

2. a)  $-7a + 1$

b)  $y^2 + 2y - 4$

c)  $2c - 10cd + d + 4$

d)  $6m^2 - 2n^2 + 2m - 3n$

3. a)  $10s^2 - 6s + 3$

b)  $3x^2 - 8x + 6$

c)  $-t^2 + 14t + 2$

d)  $n^2 + n - 6$

e)  $x^2 + 4y^2 + 9xy - 7$

f)  $-3a^2 - 4b^2 + 5ab - 15b + 8a + 6$

4. a)  $27s^2 - 63s + 36$

b)  $7w^2 + 8w - 5$

c)  $21m^2 - 63m$

d)  $2d - 3$

5. a)  $6x^2 + 7x$

b)  $24 \text{ cm}^2$

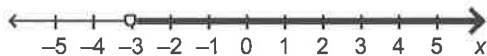
## Ch. 6 Review

1. Solve:  $20 = \frac{-3x}{4} + 5$
2. Solve:  $-5(x - 31) = 11.5$
3. Here is a student's solution for this question:  
Solve:  $3x + 5 = 18$

$$\begin{aligned} 3x + 5 &= 18 \\ \frac{3x}{3} + 5 &= \frac{18}{3} \\ x + 5 &= 6 \\ x + 5 - 5 &= 6 - 5 \\ x &= 1 \end{aligned}$$

Identify any errors in the solution by circling the mistake.  
Redo the complete solution to the right of the student's solution.

4. Write 4 numbers that are solutions of this inequality:  $x \leq 8$
5. Write an inequality whose solution is graphed on the number line.



6. Circle which of these numbers is a solution of  $x > \frac{1}{6}$ ?  $\frac{1}{7}$  ,  $\frac{1}{5}$  ,  $\frac{1}{8}$  ,  $\frac{1}{4}$
7. Graph the solution of  $w > -2.5$  on a number line.
8. Solve:  $8w - 4 \geq 7w - 2$
9. Solve, then graph this inequality:  $8.8 > 5.3 + y$
10. Solve, then graph this inequality:  $\frac{x}{3} + \frac{5}{6} \geq \frac{x}{2} + \frac{1}{3}$
11. State whether you would reverse the inequality sign to solve each inequality.
 

a) $6 < -x$	Yes	No	b) $2x \geq -4$	Yes	No
c) $\frac{x}{-4} < -5$	Yes	No	d) $\frac{-x}{3} > 9$	Yes	No
12. Solve:  $9 - 1.8b > 10.8$
13. Solve:  $8 - 3x < x + 2$
14. A games room charges a \$13 entrance fee, plus \$2.35 per hour of play time. Anne-Marie has \$29.45. For how long can she play in the games room?
  - a) Choose a variable and write an inequality for this problem.
  - b) Solve the inequality.

## Ch. 6 Answers

1.  $-20$

2.  $28.7$

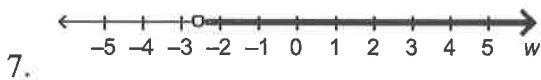
3. Error: If the student is going to divide by 3 first, each term must be divided by 3. Alternatively, the student could subtract 5 from each side first, then divide each side by 3.

4. Answers will vary.

Any number less than or equal to 8 is a solution. For example:  $-8, 0, 5, 8$

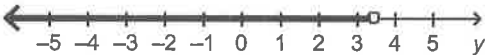
5.  $x > -3$

6.  $\frac{1}{5}, \frac{1}{4}$



8.  $w \geq 2$

9.  $y < 3.5$



10.  $x \leq 3$



11. a) Yes  
b) No  
c) Yes  
d) Yes

12.  $b < -1$

13.  $x > 1.5$

14. a) Let  $h$  represent the number of hours of play time.

$$13 + 2.35h \leq 29.45$$

b)  $h \leq 7$

Student Name: \_\_\_\_\_

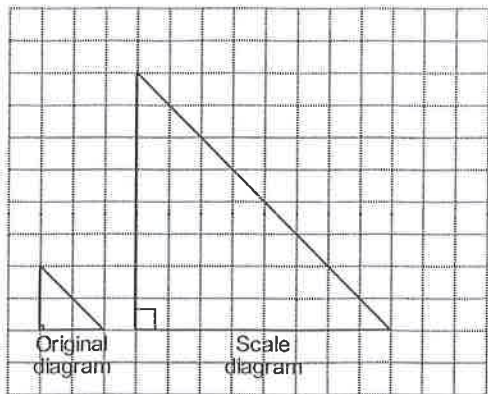
Score: \_\_\_\_\_

<b>Solve the Multi-Step Equations - Integers</b>
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$4x + 7 - 6x = 5 - 4x + 4$	$\frac{x}{2} + \frac{x}{3} = 5$
<i>Ans X=1</i>	<i>Ans X=6</i>
$\frac{3x - 1}{3x + 2} = 4$	$3(5x - 2) + 4x = 9x + 6 - 2x$
<i>Ans X=-1</i>	<i>Ans X=1</i>
$\frac{5x + 6}{4} = 3x - 2$	$5(2x + 3) = 3(4x + 1) - 2(3x + 2)$
<i>Ans X=2</i>	<i>Ans X=-4</i>

## Ch.7 Review

\_\_\_ 23. Determine the scale factor for this scale diagram.

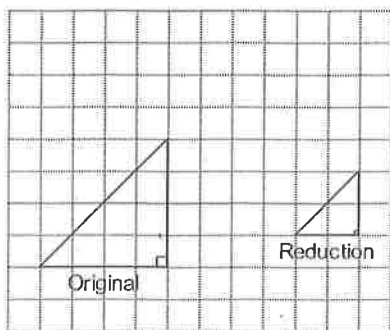


- a. 32                      b. 8                      c. 4                      d.  $\frac{1}{4}$

\_\_\_ 24. A rectangle has length 6 cm and width 4 cm.  
The rectangle is to be enlarged by a scale factor of 8.  
Calculate the length of the enlargement.

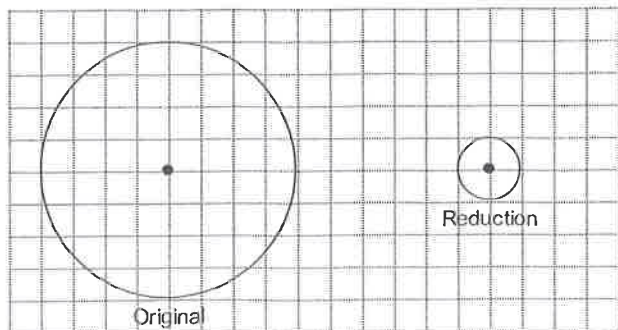
- a. 80 cm                      b. 48 cm                      c. 32 cm                      d. 14 cm

\_\_\_ 25. Determine the scale factor for this reduction.



- a. 2                      b.  $\frac{1}{4}$                       c.  $\frac{1}{2}$                       d. 4

\_\_\_ 26. Determine the scale factor for this reduction.



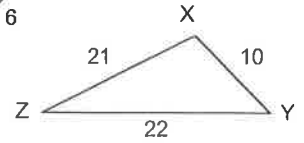
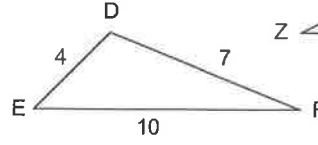
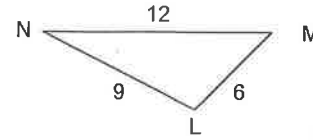
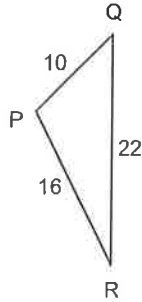
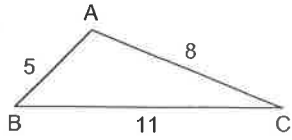
- a. 8                      b. 4                      c.  $\frac{1}{4}$                       d.  $\frac{1}{8}$



27. Calculate the side length, in units, in this proportion:  $\frac{PQ}{8} = \frac{5}{160}$

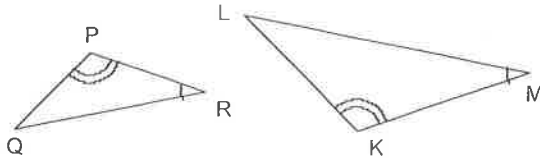
- a. 0.08                      b. 1.43                      c. 4                      d. 0.25

28. Which triangle is similar to  $\triangle ABC$ ?



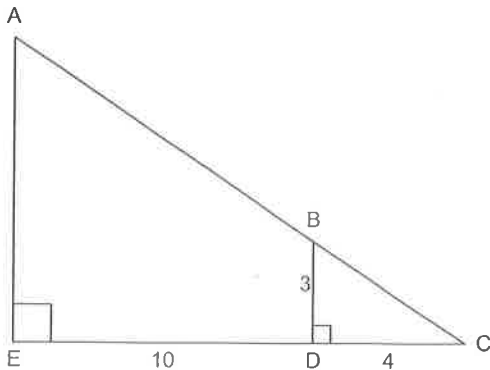
- a.  $\triangle XYZ$                       b.  $\triangle PQR$                       c.  $\triangle LMN$                       d.  $\triangle DEF$

29. These triangles are similar. Complete the ratios of the corresponding sides:  $\frac{PQ}{KL} = \frac{PR}{KM} = \frac{QR}{LM}$



- a.  $\frac{PQ}{KL} = \frac{PR}{LM} = \frac{QR}{KM}$                       c.  $\frac{PQ}{KM} = \frac{PR}{KL} = \frac{QR}{LM}$   
 b.  $\frac{PQ}{LM} = \frac{PR}{KM} = \frac{QR}{KL}$                       d.  $\frac{PQ}{KL} = \frac{PR}{KM} = \frac{QR}{LM}$

30. Determine the length of AE in this pair of similar triangles.



- a. 3.3                      b. 10.5                      c. 7.5                      d. 4.3

## Ch.7 Answers

23. ANS: C            PTS: 1            DIF: Easy  
REF: 7.1 Scale Diagrams and Enlargements            LOC: 9.SS4  
TOP: Shape and Space (Transformations)            KEY: Procedural Knowledge
24. ANS: B            PTS: 1            DIF: Easy  
REF: 7.1 Scale Diagrams and Enlargements            LOC: 9.SS4  
TOP: Shape and Space (Transformations)            KEY: Procedural Knowledge
25. ANS: C            PTS: 1            DIF: Easy            REF: 7.2 Scale Diagrams and Reductions  
LOC: 9.SS4            TOP: Shape and Space (Transformations)  
KEY: Procedural Knowledge
26. ANS: C            PTS: 1            DIF: Easy            REF: 7.2 Scale Diagrams and Reductions  
LOC: 9.SS4            TOP: Shape and Space (Transformations)  
KEY: Procedural Knowledge
27. ANS: D            PTS: 1            DIF: Easy            REF: 7.3 Similar Polygons  
LOC: 9.SS3            TOP: Shape and Space (3-D Objects and 2-D Shapes)  
KEY: Procedural Knowledge
28. ANS: B            PTS: 1            DIF: Easy            REF: 7.4 Similar Triangles  
LOC: 9.SS3            TOP: Shape and Space (3-D Objects and 2-D Shapes)  
KEY: Procedural Knowledge
29. ANS: D            PTS: 1            DIF: Easy            REF: 7.4 Similar Triangles  
LOC: 9.SS3            TOP: Shape and Space (3-D Objects and 2-D Shapes)  
KEY: Conceptual Understanding
30. ANS: B            PTS: 1            DIF: Moderate            REF: 7.4 Similar Triangles  
LOC: 9.SS3            TOP: Shape and Space (3-D Objects and 2-D Shapes)  
KEY: Procedural Knowledge