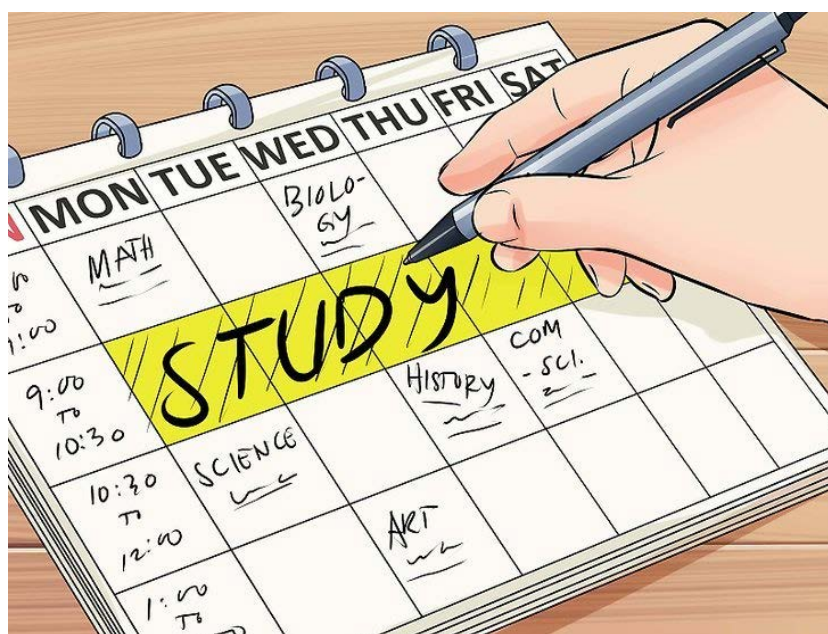


# MATH 9

## FINAL EXAM REVIEW BOOK 2



UNIT 3 - POLYNOMIALS

UNIT 4 - SCALE FACTOR & SIMILARITY

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

BLOCK: \_\_\_\_\_

# Study Checklist

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This review booklet is by no means a "practice final". It is a collection of practice questions on each unit, meant to guide your final exam studying and prepare you for the types of questions you are likely to see. DO NOT treat this booklet as a practice test. If you're stuck on a question, look it up and ask for help! DO NOT go straight to the answer key when you come across a question you cannot remember how to do. Difficult questions SHOULD guide your study! Always look up a concept in your class notes if you are stuck, then attempt the question again.

## BEFORE beginning this booklet you should:

- read through your class notes booklet on each topic
- make your own "quick summary page" of important formulas & key concepts for the unit
- review quizzes & tests from the unit to recall strengths & weaknesses (*a great study method would be to re-do old quizzes & tests on a separate piece of paper*)

## WHILE working through this booklet you should:

- look up concepts & example problems in your class notes when you come across a problem you are stuck on
- make a list of "questions to ask my teacher" so you can come to class and use your time efficiently.

## Questions I'm having difficulty with:

Page	Question Number #	Topic

## Unit 3: Polynomials Summary

my notes and things to remember...

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## UNIT 3: POLYNOMIALS

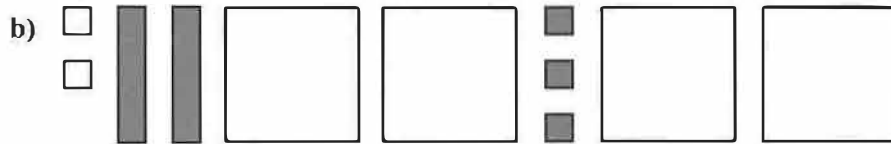
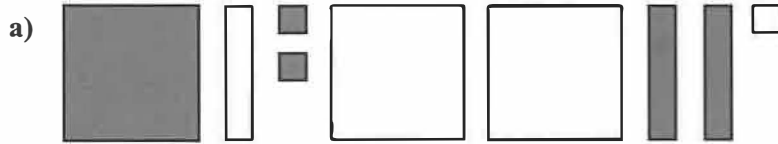
1. Determine the degree of the polynomials.

- a)  $5^3$  \_\_\_\_\_      b)  $2^2y^2$  \_\_\_\_\_  
c)  $3x^3 + 2x^2y^2$  \_\_\_\_\_      d)  $\sqrt{3}x^3 - 3x^2 + 5$  \_\_\_\_\_

2. Simplify each polynomial.

- a)  $2x^2 - y^2 + 3x^2 + 2y^2$       b)  $4x^2 - 3y + 2x - y$   
c)  $-2xy^2 - x^2y + xy^2 - x^2y$       d)  $-2xy - 3yx + 4xy + 5yx$

3. Write a polynomial expression in simplified form for the algebra tiles.



4. Add.

- a)  $(3 - 2x^2 + 4x) + (-2x + x^2 - 5)$       b)  $(2xy + x - y) + (-xy - 2x - y)$   
c)  $(-5 + 3x^2 + 7x) + (-x^2 + 4 - 3x)$       d)  $(-4xy - x + 3y) + (-xy + 7y - 3x)$
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5. Add using algebra tiles.

a)  $(2x - x^2 + 3) + (-3x + 2x^2 - 1)$

b)  $(-2xy + x + 2y) + (-xy - x - y)$

6. Subtract.

a)  $(-3x + 2x^2 + 4) - (-2 - x^2 + 4x)$

b)  $(2xy - x + 3y) - (y - x + xy)$

c)  $(4x - 5x^2 - 1) - (5 - 3x^2 - 2x)$

d)  $(3x - 2x^2 + 4) - (-2x^2 + 3x - 4)$

7. Find the product.

a)  $3(x^2 - 2x + 3)$

b)  $-3x(-x^2 + 2x - 3)$

c)  $3x^2(2x^2 - x + 1)$

d)  $-2xy(-x^2 + 2xy + y^2)$

e)  $2xy^2(x^2 - xy + y^2)$

f)  $-2xyz(x - y + z)$

g)  $3xy(2x - 3y + 2z)$

h)  $-2xyz(-x^2 + y^2 - z^2)$

i)  $-2xy(3x - y + z)$

j)  $3xyz(-2x^2 - 3y^2 + 4z^2)$

k)  $2x^2y(-x + 2y - 3z)$

l)  $-3y^2z(-2x + y - 3z)$

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8. Find the quotient.

a)  $\frac{3x^2 - 9x + 6}{3}$

b)  $\frac{-4x^2 + 8x + 6}{-2}$

c)  $\frac{10x^2 - 5xy}{5x}$

d)  $\frac{-7x^2 + 21xy}{-7x}$

e)  $\frac{-4x^2 + 8xy - 12x}{2x}$

f)  $\frac{a^2bc - ab^2c + abc^2}{-abc}$

g)  $\frac{-a^2b^2c + ab^2c^2 - a^2b^2c^2}{ab^2c}$

h)  $\frac{-a^2bc^2 - a^2bc + abc^2}{-abc}$

9. Perform the combined operations.

a)  $3x(2x - 3) - \frac{6x^2 + 4x - 8}{2}$

b)  $\frac{-8x^2(2 - x)}{4x} + 3x(2 - x)$

c)  $-2x(3x - 2y + 1) - \frac{8x - 4x^2 + 2xy}{2}$

d)  $\frac{-6x^2(4 - 3x)}{2x} - 2x(3 - 2x)$

e)  $\frac{-3x^2(2 - 5x)}{-x} + 3x(4x - 3)$

f)  $\frac{-4x^2(3x - 3y + 2)}{2x} - \frac{6x^2(3 - 2x + y)}{-x}$

# Unit 4: Scale Factor & Similarity Summary

my notes and things to remember...

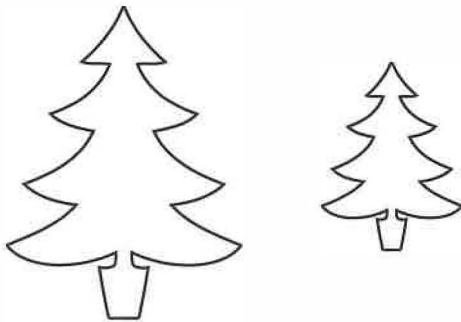
## UNIT 4: SCALE FACTOR & SIMILARITY

1. Complete the table.

Object Length	Image Length	Scale Factor
8 m	6 m	
15 cm	25 cm	
12 in		1.6
	12 in	1.6
24 mm		0.8
	24 mm	0.8

2. Determine the scale factor of the following.

a)

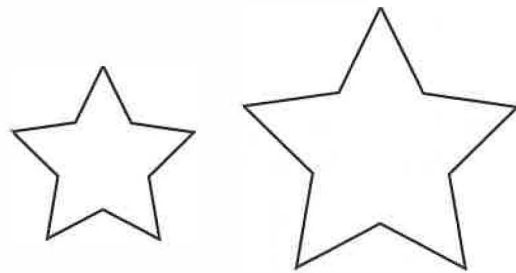


Object

Image

The scale factor is \_\_\_\_\_.

b)



Object

Image

The scale factor is \_\_\_\_\_.

3. Complete each statement.

a) If  $\frac{a+b}{b} = \frac{7}{5}$ , then  $\frac{a}{b} =$  \_\_\_\_\_.

b) If  $\frac{a-b}{b} = \frac{2}{3}$ , then  $\frac{a}{b} =$  \_\_\_\_\_.

c) If  $\frac{a}{b} = \frac{1}{3}$ , then  $\frac{a+b}{b} =$  \_\_\_\_\_.

d) If  $\frac{a}{b} = \frac{6}{5}$ , then  $\frac{a-b}{b} =$  \_\_\_\_\_.



4. Find the value of  $x$ .

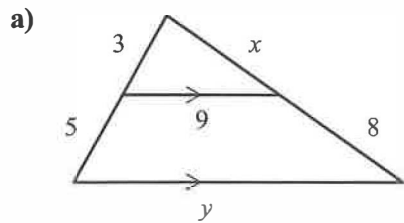
a)  $\frac{x+2}{3} = \frac{3}{7}$

\_\_\_\_\_

b)  $\frac{x-2}{4} = \frac{x+3}{8}$

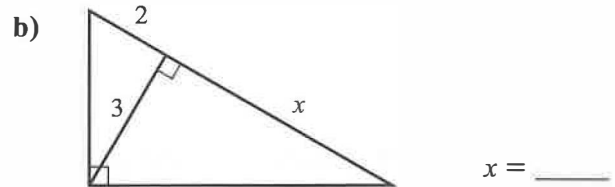
\_\_\_\_\_

5. Solve for the missing side.



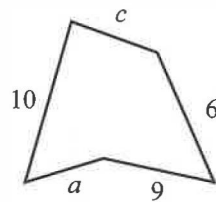
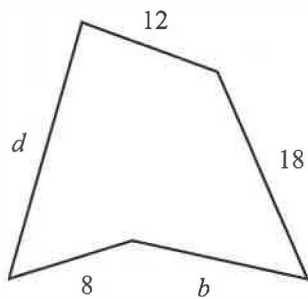
$x =$  \_\_\_\_\_

$y =$  \_\_\_\_\_



$x =$  \_\_\_\_\_

6. Find the missing measures of the similar polygons.



$a =$  \_\_\_\_\_

$b =$  \_\_\_\_\_

$c =$  \_\_\_\_\_

$d =$  \_\_\_\_\_

7. If it costs \$200 to stain a deck measuring 4 m by 5 m, what would it cost to stain a deck 5 m by 7 m?

8. A painting measuring 120 cm wide by 80 cm tall is mounted in a picture frame. There is a margin of 6 cm wide at the top and each side of the painting. If the painting is similar to the frame, what must be the width of the margin at the bottom of the painting?

## UNIT 3: POLYNOMIALS ANSWER KEY

1. a) 0   b) 2   c) 4   d) 3
2. a)  $5x^2 + y^2$    b)  $4x^2 + 2x - 4y$    c)  $-2x^2y - xy^2$    d)  $4xy$
3. a)  $-x^2 + x + 1$    b)  $-4x^2 + 2x + 1$
4. a)  $-x^2 + 2x - 2$    b)  $xy - x - 2y$    c)  $2x^2 + 4x - 1$    d)  $-5xy - 4x + 10y$
5. a)  $x^2 - x + 2$    b)  $-3xy + y$
6. a)  $3x^2 - 7x + 6$    b)  $xy + 2y$    c)  $-2x^2 + 6x - 6$    d) 8
7. a)  $3x^2 - 6x + 9$    b)  $3x^3 - 6x^2 + 9x$    c)  $6x^4 - 3x^3 + 3x^2$    d)  $2x^3y - 4x^2y^2 - 2xy^3$   
e)  $2x^3y^2 - 2x^2y^3 + 2xy^4$    f)  $-2x^2yz + 2xy^2z - 2xyz^2$    g)  $6x^2y - 9xy^2 + 6xyz$   
h)  $2x^3yz - 2xy^3z + 2xyz^3$    i)  $-6x^2y + 2xy^2 - 2xyz$    j)  $-6x^3yz - 9xy^3z + 12xyz^3$   
k)  $-2x^3y + 4x^2y^2 - 6x^2yz$    l)  $6xy^2z - 3y^3z + 9y^2z^2$
8. a)  $x^2 - 3x + 2$    b)  $2x^2 - 4x - 3$    c)  $2x - y$    d)  $x - 3y$    e)  $-2x + 4y - 6$    f)  $-a + b - c$   
g)  $-a + c - ac$    h)  $ac + a - c$
9. a)  $3x^2 - 11x + 4$    b)  $-x^2 + 2x$    c)  $-4x^2 + 3xy - 6x$    d)  $13x^2 - 18x$    e)  $-3x^2 - 3x$   
f)  $-18x^2 + 12xy + 14x$

## UNIT 4: SCALE FACTOR & SIMILARITY ANSWER KEY

1.

Object Length	Image Length	Scale Factor
8 m	6 m	0.75
15 cm	25 cm	1.67
12 in	19.2 in	1.6
7.5 in	12 in	1.6
24 mm	19.2 mm	0.8
30 mm	24 mm	0.8

2. a) 0.6   b) 1.3
3. a)  $\frac{2}{5}$    b)  $\frac{5}{3}$    c)  $\frac{4}{3}$    d)  $\frac{1}{5}$
4. a)  $-\frac{5}{7}$    b) 7
5. a)  $x = \frac{24}{5}$     $y = 24$    b)  $x = \frac{9}{2}$
6.  $a = \frac{8}{3}$     $b = 27$     $c = 4$     $d = 30$
7. \$350
8. 2 cm