Integrated Mathematics 1
Unit Plan
11/2/06

McDougal Littell

Unit 9 – Reasoning and Measurement

	Day 1	Day 2	Day 3	Day 4	Day 5
Section	Unit Project Intro 9-1 pg 477-478	9-1 pg 478-479	9-1 pg 479-480	9-2	9-3 pg 492-494
Objectives	-Investigate and use the relationships among the lengths of the sides of a right triangle -Discover and apply Pythagorean Theorem	-Apply Pythagorean Theorem -*Make a sketch* problem solving strategy (PSS)	-Recognize different kinds of reasoning (inductive and deductive)	-simplify and multiply square roots -solve equations like $2x^2 = 36$ -PSS: *Break the problem into parts*	-write if-then statements and their converses -determine whether they are true of false
Instruction	-Unit project intro -area and volume review pg 658-659 -Exploration activity in pairs -Discuss Pythagorean Theorem formula and its uses -Integrate Pythagorean theorem section from other book	-Work through sample 1 and 2 together as a class -introduce additional sample for individual practice -reinforce *make a sketch* problem solving strategy -allow some in class time for homework	-Review initial exploration on pg 477 (day 1) -Discuss inductive and deductive reasoning -Sample 3 in pairs -Have students use inductive or deductive reasoning to explain if vertical angles are equal in measure	-"Talk it over" in pairs pg 486 -give product properties of square roots -Discuss sample 1-4 -Additional sample S3 and extra sample to students to work in pairs -reinforce *break into parts* strategy	-Talk about if-then statements and converses -discuss sample 1 and 2 as a class -"talk it over" and sample 3 in pairs -Discuss sample 3 together as a class -Do problems 1-9 in pairs during class -give remainder of time for homework
Assignment	1-3 pg 481	5-21 pg 481-483	22-28, 36 pg 483-484	1-13 odd, 14-24 pg 489-490	10-18, 20 pg 496-497

Unit 9 – Reasoning and Measurement

	Day 6	Day 7	Day 8	Day 9	Day 10
Section	9-3 pg 494-496	QUIZ WORK DAY	9-4 pg 500-501	9-4 pg 502-504	9-5 pg 507-509
Objectives	-Understand Zero-product property -Gain further understanding of converses	-Quiz -Begin in-class work on unit projects	-Exploration of theoretical geometric probability -PSS: *Use a formula*	-Use lengths and areas to determine theoretical geometric probabilities -PSS: *Draw a diagram*	-Find the surface area of prisms and cylinders -PSS: *Break the problem into parts* and *make a sketch*
Instruction	-Introduce zero-product property -sample 4 and "talk it over" as a class -give additional sample S4 to work in pairs -Converse of Pythagorean Theorem -Discuss sample 5 -Give additional sample S5 to work individually	-Quiz on sections 9-1 through 9-3 -Allow remainder of time to work on group projects -Encourage students to talk with other groups to show understanding (project is not a competition) -Due 36 and 37 on pg 491 to start	-Exploration of geometric probability activity in pairs pg 500-501 -Do all seven steps in pairs during class -Discuss findings from activity as a class	-Define and discuss geometric probability -compare exploration example data and theoretical geometric probability -additional sample S2 and extra sample -"talk it over" in pairs	-introduce section through "talk it over" -define prism, bases, and faces -discuss SA formula for a prism -give additional sample S1 for individual work -discuss SA formula for a cylinder with sample 2
Assignment	21-37 odd pg 497-498 project supplies	Summarize progress in folder	1-5 pg 504	7-15 odd, 19, 20 pg 505-506	1-8, 10-16 pg 512-513

Unit 9 – Reasoning and Measurement

	Day 11	Day 12	Day 13	Day 14	Day 15
Section	9-5 pg 509-511	9-6 pg 515-517	9-6 pg 517-518	QUIZ WORK DAY	9-7
Objectives	-Find the surface area of Pyramids -PSS: *break the problem into parts*	-Find the volume of prisms -PSS: *break the problem into parts*	-Find the volume of cylinders -PSS: *break the problem into parts*	-Quiz -Finish construction and mathematics of unit project	-Find the volumes of pyramids and cones -PSS: *Use a formula*
Instruction	-review definition of surface area -define pyramid and regular pyramid and discuss their properties "talk it over" in pairs and then discuss as a class -Sample 3 as a class -Give additional sample S3 for individual work -Review and discuss additional sample as a class	-Review definition of a prism -give and discuss formula for volume of a prism -sample 1 and "talk it over" as a class -give sample 2 and additional samples S2 to be done in pairs -discuss as a class -allow any remaining time for homework	-Review definition of a cylinder -give and discuss formula for volume of a cylinder -discuss sample 3 and 4 as a class -give additional samples S3 and S4 to be done in pairs -Discuss extra sample as a class -"talk it over" in pairs and discuss as a class	-Quiz on sections 9-4 through 9-6 -allow remainder of class time to finish unit project	-Review definition of a pyramid -give and discuss formula for volume of a pyramid -work sample 1 together as a class -define a cone -give and discuss formula for volume of a cone -work through sample 2 as a class "talk it over" and additional samples S1 and S2 in pairs
Assignment	17-23, 31-32 pg 513-514	1-10 pg 519	11-16, 17-21 odd pg 520-521	Summarize project in folder	3-11, 13-15 pg 527-528

Unit 9 – Reasoning and Measurement

	Day 16	Day 17	Day 18	Day 19	Day 20
Section	9-8 530-531	9-8 pg 532-533	Project Presentations	Review for Test	TEST on unit 9
Objectives	-Use ratios of corresponding lengths, areas, and volumes in similar figures -PSS: *break the problem into parts*	-Use ratios of corresponding lengths, areas, and volumes in similar figures -PSS: *Use a proportion*	-Give group presentations of the unit projects	-Prepare students for Unit 9 test	-Test knowledge learned and retained from unit 9
Instruction	-"talk it over" -theorem for area of similar figures -discuss sample 1 and sample 2 as a class -Reinforce *break the problem into parts* PSS -give additional samples S1 and S2 to be done in pairs. -discuss extra sample as a class	-Introduce volumes of similar space figures -"talk it over" 9-12 as a class -give theorem for volumes of similar space figures -"talk it over" 13 in pairs -discuss samples 3 and 4 as a class give additional samples S3 and S4	-allow first 15 minutes for students to get together to prepare or finish any last minute details -students show project and give mathematical results	-Review unit -Place geometric solids on the board	-Give expectations -review instructions
Assignment	1-7, 9, 11 pg 533-534	18-29 odd pg 537-538	Unit 9 Review 1-19 pg 540-541	20-40 pg 541	

Supplements used

1. Student Resource Toolbox on pg 658 and 659
    a. Used to review the concepts of volume and area before starting the unit (day 1)
2. http://www.classzone.com/intmath/intmath1/common/unit9/index.htm
    a. under student help section
    b. used for additional samples in sections 9-2, 9-4, 9-6, 9-8 for in class work
3. Algebra; The University of Chicago School Mathematics Project. Scott Foresman. 1996.
    a. Used Pythagorean Theorem Section 1-8. Pg 45-51.
    b. Integrated ideas from this section into day 1 and day 2 to explore Pythagorean Theorem and get a better understanding.
    c. Especially like using the visual representation showing the squares on each side of the right triangles to show that the relationship $a^2 + b^2 = c^2$.

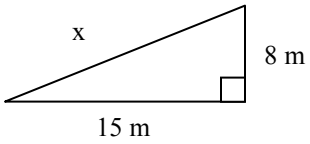
Name_____ Date_____ Score_____/30

Unit 9 - Quiz 1

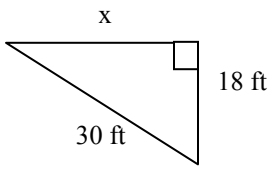
Read all directions
You may use a calculator
Show your work

1) Find the missing length for each triangle. (Include proper units) (4 pts each)

a)



b)



2) Simplify (2 pts each)

a) $\sqrt{54}$

b) $\sqrt{5} \cdot \sqrt{7}$

3) Solve for x. (3 pts each)

a) $2x^2 = 24$

b) $y^2 + y^2 = x^2$

4) Tell whether each statement is *True* or *False*. If it is false, give a counterexample. (4 pts)
   a) If $y = 0$, then $4y = 0$.

   b) If $x^2 = 25$, then $x = 5$.

5) Write the converse of each statement. Tell whether the **converse** is *True* or *False*. If the **converse** is false, give a counterexample. (8 pts)
   a) if $(x + 1) = 0$, then $(x + 1)(x - 2) = 0$

   b) If $5x = 0$, then $x = 0$.

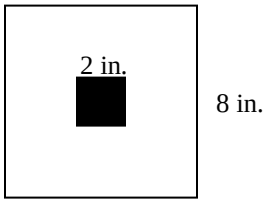
Name_____ Date_____ Score_____/30

Unit 9 - Quiz 2

Read all directions
You may use a calculator
Show your work

An 8-inch square target has a 2-inch square bullseye. Use this information for questions 1 and 2.

1) What is the theoretical probability that a disk dropped on the target will hit the bullseye? (3 pts)

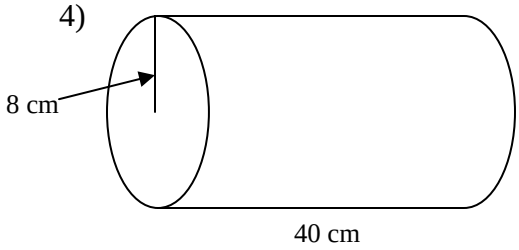


2) How many times would you expect to land on the bullseye if you dropped a disk 80 times? (2 pts)

3) A friend is to come to your home between 4:00 P.M. and 5:00 P.M. If you make a 5-minute phone call during that time, what is the probability that she will arrive while you are talking on the telephone? (3 pts)

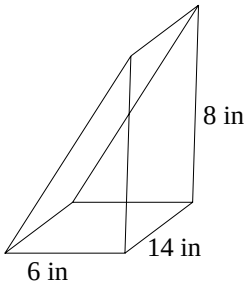
For questions 4 and 5, find the surface area of each figure. (Include proper units)
(5 pts each)

4)



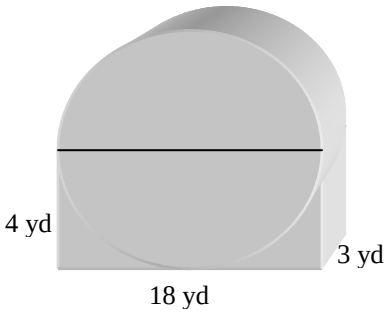
Find surface area. (include proper units) (5 pts)

5)

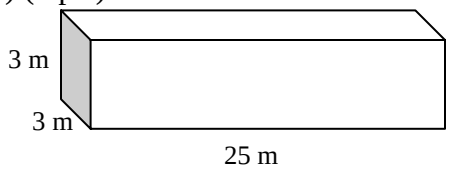


For questions 7 and 8, find the volume of each figure.

6) (8 pts)



7) (4 pts)



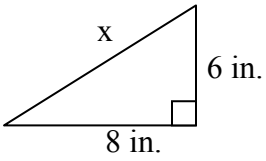
Name_____ Date_____ Score_____/100

Unit 9 Test

Read all directions
You may use a calculator
Show your work

1) Find the missing length in the right triangles. (include proper units) (4 pts each)

a)



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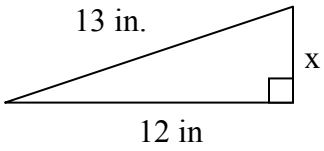


2) **Simplify**. (4 pts each)

a) $\sqrt{75}$

b) $4\sqrt{3} \cdot 3\sqrt{20}$

For Questions 3-6, use the statement below.
A number is divisible by 2 if the number is divisible by 4.

3) What is the hypothesis of the statement? (2 pts)

4) What is the conclusion of the statement? (2 pts)

5) Write the converse of the statement. (3 pts)

6) Tell whether the **converse** is *True* or *False*. If it is false, give a counterexample. (3 pts)

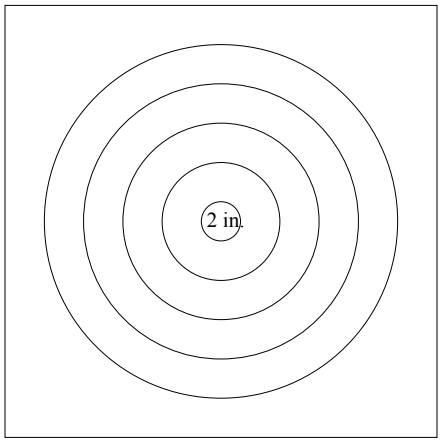
In Questions 7-9, solve for x. (4 pts each)

7) $7x^2 = 84$

8) $0.3x - 8 = 1$

9) $9x(x-2) = 0$

10) A dartboard is designed in the shape of a square 22 inches long on each side. Extra points are earned when a dart hits the bullseye zone which is a circle of diameter 2 inches. If a player throws a dart which hits the dartboard, what is the probability that the dart hits the bullseye? Leave your answer in terms of π. (6 pts)



22 in

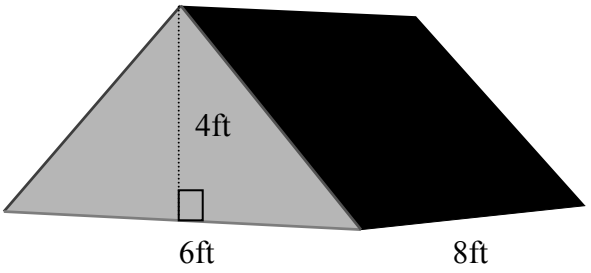
11) **Writing** Explain the difference between inductive reasoning and deductive reasoning. (7 pts)

12) The surface area of a cube is 216 in.^{2}. What is the length of one edge of the cube? (include proper units) (6 pts)

13) Find the surface area of a regular square pyramid with base edge 8 in. and slant height 6 in. (include proper units) (6 pts)

14) How many cubic feet of sand are needed to fill a rectangular sandbox that is 5 ft wide, 4 ft long, and 6 in. deep? (include proper units) (6 pts)

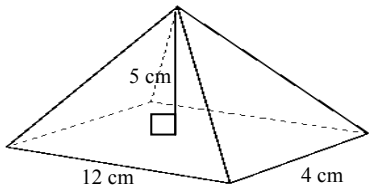
15) How much canvas is needed to make the tent shown at the right? The tent will **not** have a bottom. (include proper units) (5 pts)



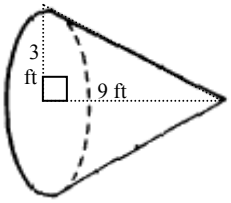
16) To the nearest tenth, what is the <u>volume</u> of a cylindrical can with diameter 6 in. and height 10 in. (include proper units) (6 pts)

In Questions 18 and 19, find each volume. (include proper units) (5 pts each)

17)



18)



19) The ratio of lengths of the corresponding sides of two similar polygons is 5 : 7 and the area of the larger polygon is 98 ft^2. Find the area of the smaller polygon. (include proper units) (5 pts)

20) The ratio of lengths of the corresponding sides of two similar space figures is 3 : 4 and the volume of the smaller figure is 108 cm^3. Find the volume of the larger figure. (include proper units) (5 pts)

EXTRA CREDIT (6 pts possible)

Open-ended Create an interesting package design for a new candy. Draw a picture of your package, including the dimensions. Then find the **volume** and **surface area** of your package.