Coach's Corner Assessment

Coach's Corner provides practice and allows you to self-reflect on your conceptual understanding of the *Lesson* skills. Assessment of your work in *Coach's Corner* will be combined into two overall completion marks, one for *Workbook A* and one for *Workbook B*. Your work for *Coach's Corner* in each *Workbook* will be assessed according to the rubric provided.

Category	Strategy and Procedures	Response to Questions
	The student...	*The student...*
4	• uses efficient and effective strategies to solve the problem(s)	• provides detailed explanations and follows directions appropriately to complete all questions
3	• uses effective strategies to solve the problem(s)	• provides clear explanations and follows directions adequately to complete most questions
2	• uses effective strategies inconsistently to solve the problem(s)	• provides incomplete explanations and follows some directions to complete a few questions
1	• does not use effective strategies to solve the problem(s)	• provides incomplete explanations and does not follow directions to complete some questions

Complete *Coach's Corner* exercises using your best work, showing all relevant steps needed to arrive at your solution. Refer to the *Module* to review lesson instructions. Contact your teacher for assistance or clarification as needed, or to investigate the topic further.

Check and correct your work using the solutions provided in *Equipment Room* in the *Module*.

Coach's Corner is worth 8 marks.

After you have assessed your work, reflect on your understanding of the concepts addressed in the *Coach's Corner* exercises in the table provided.

Unit 3: Logic and Reasoning Lesson 3.3

Coach's Corner – V

1. Explain whether the reasoning in each of the following is correct.

   a. Lions, tigers, cougars, bobcats and house cats all have sharp claws, so all cats have sharp claws.

   b. Naim said Tahnee will win the race and Naim knows a lot about racing, so Tahnee will win.

   c. A square is a rhombus because it has four equal sides.

   d. All insects have an exoskeleton and a hornet is an insect, so it has an exoskeleton.

   e. Nobody has ever disproved the existence of dragons, so they must exist.

2. A phrase the ancient Greek Philospher Socrates is credited with is "I know that I know nothing". The statement stemmed from his belief that although one can be very confident in something, it is impossible to know anything with absolute certainty.

   a. Explain why the statement "I know that I know nothing" is inconsistent.

   b. Make up your own self-contradicting statement. Explain why it is self-contradictory.

3. Suppose two coins of the same type are laid side by side as shown in the diagram.

   a. If one coin is rolled along the other coin, conjecture how many rotations the moving coin will undergo to make one trip around the second coin.

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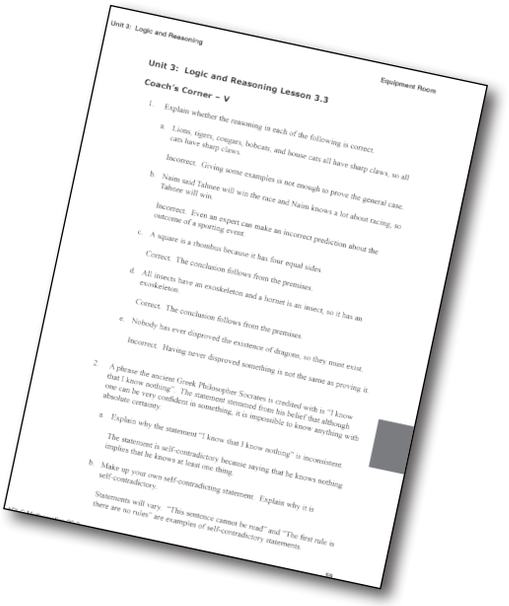
   b. Test your conjecture. Was it correct? Revise it if not.

   c. Explain why some people may find the number of rotations unexpected.

Please go to *Equipment Room* to check your solutions before returning to *Lesson 3.3*.


Unit 3: Logic and Reasoning

Equipment Room

Unit 3: Logic and Reasoning Lesson 3.3

Coach's Corner – V

1. Explain whether the reasoning in each of the following is correct.
   a. Lions, tigers, cougars, bobcats, and house cats all have sharp claws, so all cats have sharp claws.

      Incorrect. Giving some examples is not enough to prove the general case.
   b. Naim said Tahnee will win the race and Naim knows a lot about racing, so Tahnee will win.

      Incorrect. Even an expert can make an incorrect prediction about the outcome of a sporting event.
   c. A square is a rhombus because it has four equal sides.

      Correct. The conclusion follows from the premises.
   d. All insects have an exoskeleton and a hornet is an insect, so it has an exoskeleton.

      Correct. The conclusion follows from the premises.
   e. Nobody has ever disproved the existence of dragons, so they must exist.

      Incorrect. Having never disproved something is not the same as proving it.
2. A phrase the ancient Greek Philosopher Socrates is credited with is "I know that I know nothing". The statement stemmed from his belief that although one can be very confident in something, it is impossible to know anything with absolute certainty.
   a. Explain why the statement "I know that I know nothing" is inconsistent.

      The statement is self-contradictory because saying that he knows nothing implies that he knows at least one thing.
   b. Make up your own self-contradicting statement. Explain why it is self-contradictory.

      Statements will vary. "This sentence cannot be read" and "The first rule is there are no rules" are examples of self-contradictory statements.

After you have assessed your work, reflect on your understanding of the concepts addressed in the *Coach's Corner* exercises in the table provided.

Question Number	Got it!	Almost there…	Need to retry or ask for help.
1			
2			
3			

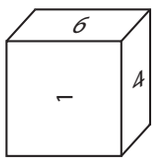
Unit 3: Logic and Reasoning Lesson 3.3

Coach's Corner – VI

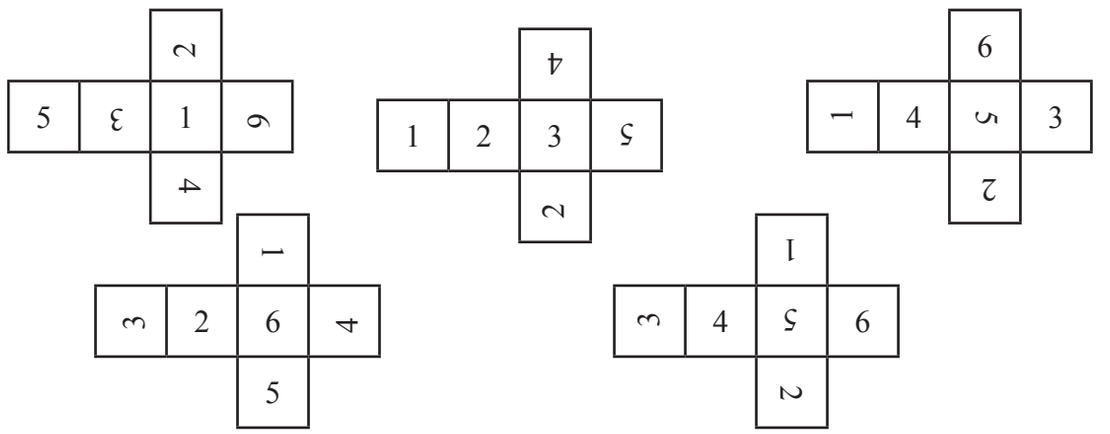
1. Fill in the blanks for the following long division.

$$\begin{array}{r} \square\square 9 \\ \square\overline{)\,3\,\square\square} \\ \underline{\square} \\ 8 \\ \underline{\square} \\ \square\square \\ \underline{\square\,7} \\ 0 \end{array}$$

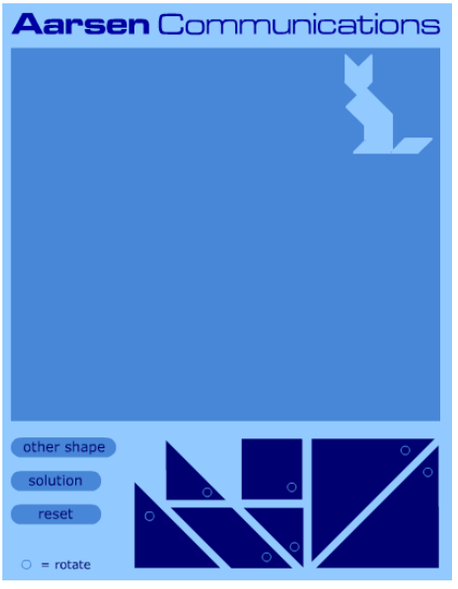
2. Consider the following cube.



Which of the following nets could have been used to make the cube? Explain.

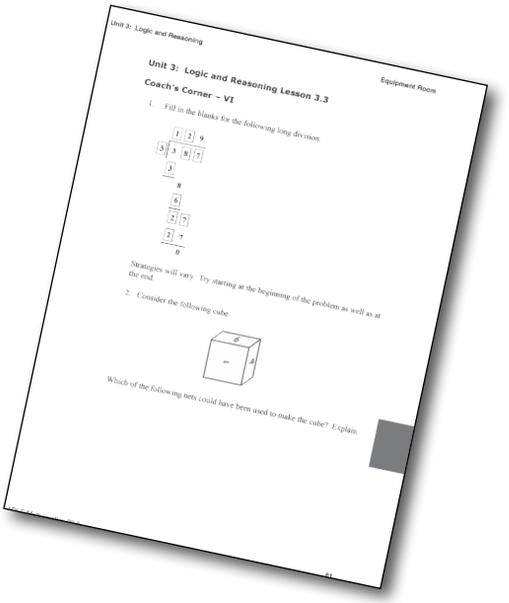


3. Tangrams are a type of puzzle where you try to make a given shape using all of the smaller tiles. Try working with them at (http://www.sonarweb.co.uk/cc/tangram.swf).



Explain how reasoning can be used to help you solve a tangram puzzle.

Please go to the *Equipment Room* to check your solutions before proceeding to *Game On!*, on the next page of this *Workbook*.


Unit 3: Logic and Reasoning

Unit 3: Logic and Reasoning Lesson 3.3

Equipment Room

Coach's Corner – VI

1. Fill in the blanks for the following long division.

Strategies will vary. Try starting at the beginning of the problem as well as at the end.

2. Consider the following cube.

Which of the following nets could have been used to make the cube? Explain.

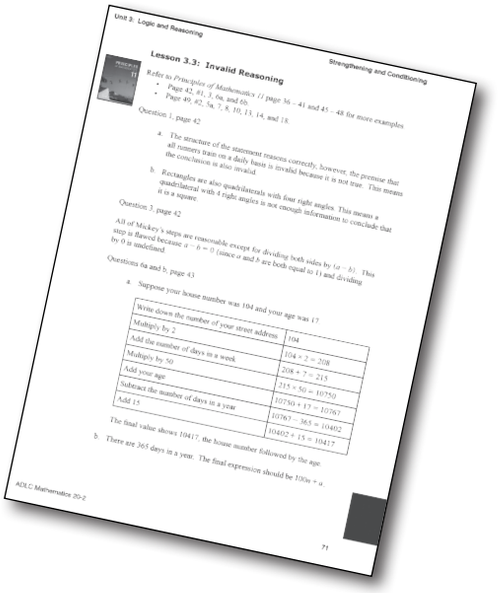
After you have assessed your work, reflect on your understanding of the concepts addressed in the *Coach's Corner* exercises in the table provided.

Question Number	Got it!	Almost there…	Need to retry or ask for help.
1			
2			
3			

Note: Before you complete *Game On!*, you may review your skills and get more practice by completing the following problems in *Principles of Mathematics 11*.

- Page 42, #1, 3, 6a and 6b
- Page 49, #2, 5a, 7, 8, 10, 13, 14, and 18

Check your work in *Strengthening and Conditioning*.


Unit 3: Logic and Reasoning

Strengthening and Conditioning

Lesson 3.3: Invalid Reasoning

Refer to *Principles of Mathematics 11* page 36 – 41 and 45 – 48 for more examples

- Page 42, #1, 3, 6a, and 6b
- Page 49, #2, 5a, 7, 8, 10, 13, 14, and 18

Question 1, page 42

a. The structure of the statement reasons correctly, however, the premise that all runners train on a daily basis is invalid because it is not true. This means the conclusion is also invalid.

b. Rectangles are also quadrilaterals with four right angles. This means a quadrilateral with 4 right angles is not enough information to conclude that it is a square.

Question 3, page 42

All of Mickey's steps are reasonable except for dividing both sides by $(a - b)$. This step is flawed because $a - b = 0$ (since a and b are both equal to 1) and dividing by 0 is undefined.

Questions 6a and b, page 43

a. Suppose your house number was 104 and your age was 17.

Write down the number of your street address	104
Multiply by 2	$104 \times 2 = 208$
Add the number of days in a week	$208 + 7 = 215$
Multiply by 50	$215 \times 50 = 10750$
Add your age	$10750 + 17 = 10767$
Subtract the number of days in a year	$10767 - 365 = 10402$
Add 15	$10402 + 15 = 10417$

The final value shows 10417: the house number followed by the age.

b. There are 365 days in a year. The final expression should be $100n + a$.

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