# *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 towards your final mark in each *Workbook*.

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 3.1

### Coach's Corner – I

1. The picture below is a composite photograph made by satellites at night. Make a conjecture based on this photograph.



2. Make a conjecture about adding even numbers. Show at least 3 examples to support your conjecture.

3. Make a conjecture based on the following data.

| Canadian farm operators by gender and age (2001 and 2006 Census of Agriculture) | | |
|---|---|---|
| **Group** | **2001** | **2006** |
| **Males** | 255 015 | 236 220 |
| Under 35 | 29 430 | 22 170 |
| 35 to 54 | 132 060 | 114 695 |
| 55 and older | 93 530 | 99 360 |
| Median age | 49 | 52 |
| **Females** | 91 180 | 90 835 |
| Under 35 | 10 490 | 7 755 |
| 35 to 54 | 53 510 | 49 465 |
| 55 and older | 27 175 | 33 615 |
| Median age | 48 | 50 |
| | | **Source:** *Statistics Canada* |

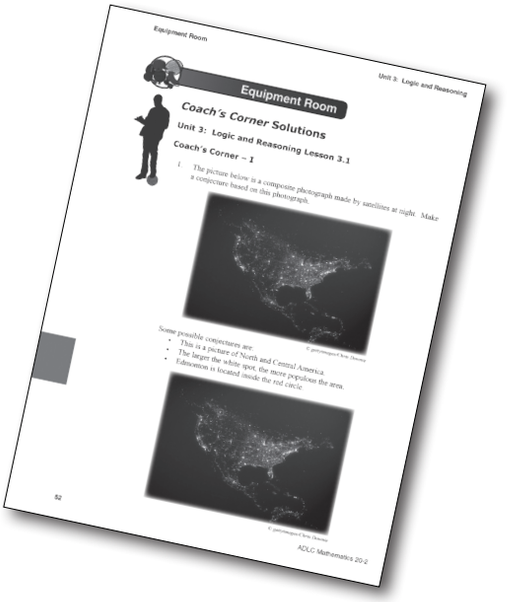
Recall that the median value is the middle number in an ordered set of numbers.

18 is the median in the following set:

1, 2, 8, **18**, 19, 20, 20

Please go to *Equipment Room* to check your solutions before returning to *Lesson 3.1*.

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


Equipment Room

Unit 3: Logic and Reasoning

Equipment Room

Coach's Corner Solutions

Unit 3: Logic and Reasoning Lesson 3.1

Coach's Corner – 1

1. The picture below is a composite photograph made by satellites at night. Make a conjecture based on this photograph.

Some possible conjectures are:

- This is a picture of North and Central America.
- The larger the white spot, the more populous the area.
- Edmonton is located inside the red circle.

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

## Unit 3: Logic and Reasoning Lesson 3.1

### Coach's Corner – II

1. Provide a counterexample showing that each of the following conjectures is false. Explain.

   a. All birds can fly.

   b. Two triangles with equal angles are identical.

   c. $\sqrt{x^2} = x$

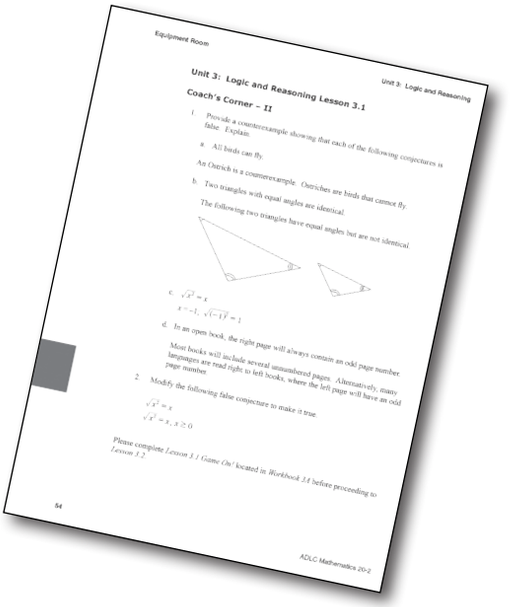
   d. In an open book, the right page will always contain an odd page number.

2. Modify the following false conjecture to make it true.

$\sqrt{x^2} = x$

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

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


Equipment Room

Unit 3: Logic and Reasoning Lesson 3.1

Coach's Corner – 11

1. Provide a counterexample showing that each of the following conjectures is false. Explain.

a. All birds can fly.

An Ostrich is a counterexample. Ostriches are birds that cannot fly.

b. Two triangles with equal angles are identical.

The following two triangles have equal angles but are not identical.

c. $\sqrt{x^2} = x$

$4^2 = 1$, $\sqrt{(-1)^2} = 1$

d. In an open book, the right page will always contain an odd page number.

Most books will include several unnumbered pages. Alternatively, many languages are read right to left books, where the left page will have an odd page number.

2. Modify the following false conjecture to make it true.

$\sqrt{x^2} = x$

$\sqrt{x^2} = x,\ x \geq 0$

Please complete *Lesson 3.1 Game On!* located in *Workbook 3A* before proceeding to *Lesson 3.2*.

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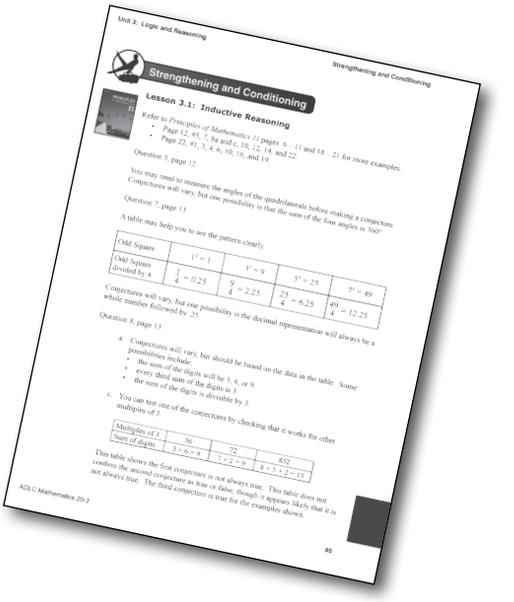
| Question Number | Got it! | Almost there… | Need to retry or ask for help. |
|---|---|---|---|
| 1 | | | |
| 2 | | | |

**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 12, #5, 7, 8, 10, 12, 14, and 22
- Page 22, #1, 3, 4, 6, 10, 16, and 19

Check your work in *Strengthening and Conditioning*.


Unit 3: Logic and Reasoning

Strengthening and Conditioning

Strengthening and Conditioning

Lesson 3.1: Inductive Reasoning

Refer to *Principles of Mathematics 11* pages 6 – 11 and 18 – 21 for more examples.

- Page 12, #5, 7, 8a and c, 10, 12, 14, and 22.
- Page 22, #1, 3, 4, 6, 10, 16, and 19.

Question 5, page 12

You may need to measure the angles of the quadrilaterals before making a conjecture. Conjectures will vary, but one possibility is that the sum of the four angles is 360°.

Question 7, page 13

A table may help you to see the pattern clearly:

| Odd Square | $1^2 = 1$ | $3^2 = 9$ | $5^2 = 25$ | $7^2 = 49$ |
|---|---|---|---|---|
| Odd Square divided by 4 | $\frac{1}{4} = 0.25$ | $\frac{9}{4} = 2.25$ | $\frac{25}{4} = 6.25$ | $\frac{49}{4} = 12.25$ |

Conjectures will vary, but one possibility is the decimal representation will always be a whole number followed by .25.

Question 8, page 13

a. Conjectures will vary, but should be based on the data in the table. Some possibilities include:
- the sum of the digits will be 3, 6, or 9
- every third sum of the digits is 3
- the sum of the digits is divisible by 3

c. You can test one of the conjectures by checking that it works for other multiples of 3.

| Multiples of 3 | 36 | 72 | 852 |
|---|---|---|---|
| Sum of digits | $3 + 6 = 9$ | $7 + 2 = 9$ | $8 + 5 + 2 = 15$ |

This table shows the first conjecture is not always true. This table does not confirm the second conjecture as true or false, though it appears likely that it is not always true. The third conjecture is true for the examples shown.

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