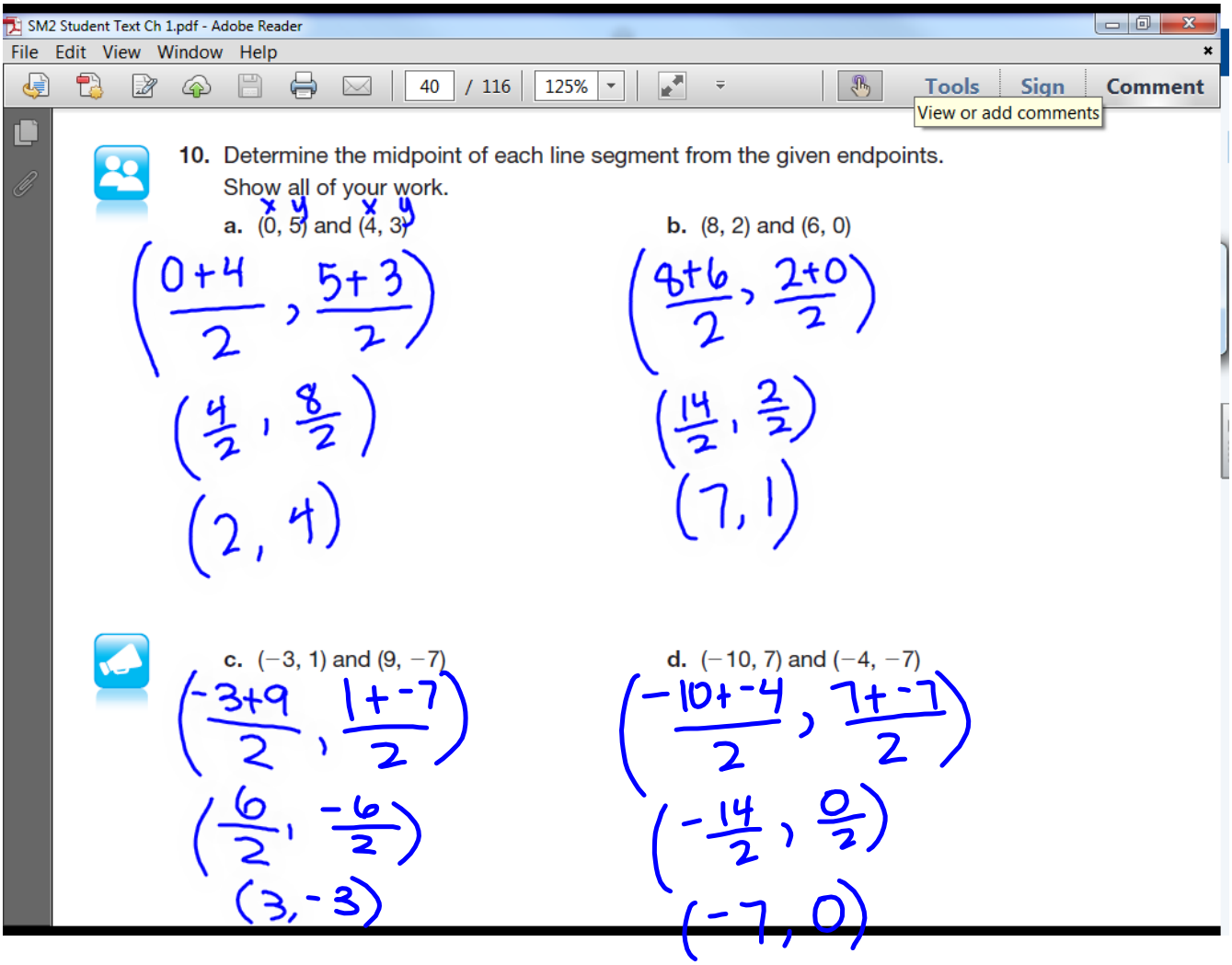
Questions on lesson 1.3?

Look over Lesson 1.3's homework, we will be taking our content mastery quiz soon!

Feb 27-8:47 AM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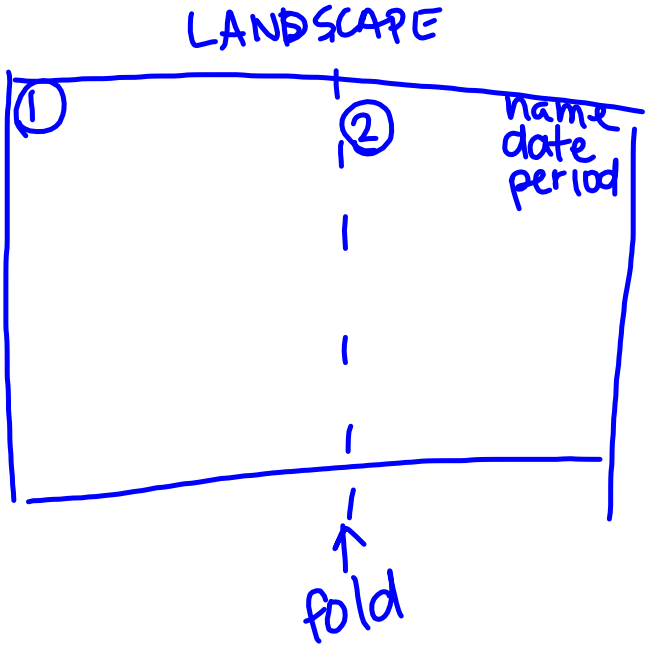
10. Determine the midpoint of each line segment from the given endpoints. Show all of your work.
a. (0, 5) and (4, 3)
x y x y
$\left(\frac{0+4}{2}, \frac{5+3}{2}\right)$
$\left(\frac{4}{2}, \frac{8}{2}\right)$
(2, 4)
b. (8, 2) and (6, 0)
$\left(\frac{8+6}{2}, \frac{2+0}{2}\right)$
$\left(\frac{14}{2}, \frac{2}{2}\right)$
(7, 1)
c. (−3, 1) and (9, −7)
$\left(\frac{-3+9}{2}, \frac{1+-7}{2}\right)$
$\left(\frac{6}{2}, \frac{-6}{2}\right)$
(3, −3)
d. (−10, 7) and (−4, −7)
$\left(\frac{-10+-4}{2}, \frac{7+-7}{2}\right)$
$\left(-\frac{14}{2}, \frac{0}{2}\right)$
(−7, 0)



Sep 8-11:22 AM

Content Mastery Quiz #4

Lesson 1.3

you may want a calculator

Show ALL work to receive full points

Determine the midpoint of each line segment from the given endpoints.

1) (4,3) and (6,5)

2) (-1, 5) and (9,1)

Sep 3-8:26 AM

2.1 A Little Dash of Logic
Foundations for Proof

PG.120 IN YOUR BOOK

1. Emma considered the following statements.
   - $4^2 = 4 \times 4$
   - Nine cubed is equal to nine times nine times nine. 9^3
   - 10 to the fourth power is equal to four factors of 10 multiplied together.

   Emma concluded that raising a number to a power is the same as multiplying the number as many times as indicated by the exponent. How did Emma reach this conclusion?

She had 3 specific examples where her conclusion was true, so she was led to that conclusion.

2. Ricky read that raising a number to a power is the same as multiplying that number as many times as indicated by the exponent. He had to determine seven to the fourth power using a calculator. So, he entered $7 \times 7 \times 7 \times 7$. How did Ricky reach this conclusion?

He was given a rule & he used it to find the answer to 7^4.

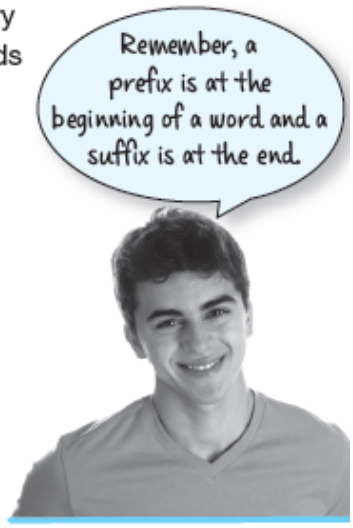
3. Compare Emma's reasoning to Ricky's reasoning.

Topic is the same, but Emma wasn't given the rule, Ricky was.
→ Opposite methods of reasoning.

TAKE 5 MINS TO FINISH UP PAGE 120

PG.121 IN YOUR BOOK

The ability to use information to reason and make conclusions is very important in life and in mathematics. There are two common methods of reasoning. You can construct the name for each method of reasoning using your knowledge of prefixes, root words, and suffixes.



Word Fragment	Prefix, Root Word, or Suffix	Meaning
in-	Prefix	*toward or up to*
de-	Prefix	*down from*
-duc-	Root Word	*to lead* and often *to think*, from the Latin word *duco*
-tion	Suffix	*the act of*

1. Form a word that means "the act of thinking down from."

deduction

2. Form a word that means "the act of thinking toward or up to."

induction

Induction is reasoning that uses specific examples to make a conclusion. Sometimes you will make generalizations about observations or patterns and apply these generalizations to new or unfamiliar situations. For example, you may notice that when you don't study for a test, your grade is lower than when you do study for a test. You apply what you learned from these observations to the next test you take.

Deduction is reasoning that uses a general rule to make a conclusion. For example, you may learn the rule for which direction to turn a screwdriver: "righty tighty, lefty loosey." If you want to remove a screw, you apply the rule and turn the screwdriver counterclockwise.

3. Consider the reasoning used by Emma, Ricky, Jennifer, and Aaron in Problem 1.

   a. Who used inductive reasoning?

Emma & Jennifer

   b. Who used deductive reasoning?

Ricky & Aaron

Aug 24-1:51 PM

PG.122 IN YOUR BOOK

PROBLEM 3 Coming to Conclusions

A problem situation can provide you with a great deal of information that you can use to make conclusions. It is important to identify specific and general information in a problem situation to reach appropriate conclusions. Some information may be irrelevant to reach the appropriate conclusion.

Ms. Ross teaches an Economics class every day from 1:00 PM to 2:15 PM. Students' final grade is determined by class participation, homework, quizzes, and tests. She noticed that Andrew has not turned in his homework 3 days this week. She is concerned that Andrew's grade will fall if he does not turn in his homework.

Irrelevant Information:
Ms. Ross teaches an Economics class every day from 1:00 PM to 2:15 PM.

General information:
Students' final grade is determined by class participation, homework, quizzes, and tests.

Specific information:
Andrew has not turned in his homework 3 days this week.

Conclusion:
Andrew's grade will fall if he does not turn in his homework.

based on

1. Did Ms. Ross use induction or deduction to make this conclusion? Explain your answer.

deduction; conclusion is based general rule/info.

TAKE 5 MINS TO WORK ON PG.123-126

HW: finish through pg 127.

PG.127 IN YOUR BOOK

PROBLEM 4 Why Is This False?

There are two reasons why a conclusion may be false. Either the assumed information is false, or the argument is not valid.

1. Derek tells his little brother that it will not rain for the next 30 days because he "knows everything." Why is this conclusion false?

To show that a statement is false, you can provide a *counterexample*. A **counterexample** is a specific example that shows that a general statement is not true.

5. Provide a counterexample for each of these statements to demonstrate that they are not true.
   a. All prime numbers are odd.

PG.128 IN YOUR BOOK

PROBLEM 5 You Can't Handle the Truth Value

A **conditional statement** is a statement that can be written in the form "If p, then q." This form is the **propositional form** of a conditional statement. It can also be written using symbols as $p \rightarrow q$, which is read as "p implies q." The variables p and q are **propositional variables**. The **hypothesis** of a conditional statement is the variable p. The **conclusion** of a conditional statement is the variable q.

The **truth value** of a conditional statement is whether the statement is true or false. If a conditional statement could be true, then the truth value of the statement is considered true. The truth value of a conditional statement is either true or false, but not both.

You can identify the hypothesis and conclusion from a conditional statement.

Conditional Statement

If $x^2 = 36$, then $x = 6$ or $x = -6$.

Hypothesis of the Conditional Statement

$x^2 = 36$

Conclusion of the Conditional Statement

$x = 6$ or $x = -6$.

Consider the conditional statement: If the measure of an angle is 32°, then the angle is acute.

1. What is the hypothesis p?

2. What is the conclusion q?

PG.128 IN YOUR BOOK

3. If p is true and q is true, then the truth value of a conditional statement is true.

a. What does the phrase "If p is true" mean in terms of the conditional statement?

b. What does the phrase "If q is true" mean in terms of the conditional statement?

c. Explain why the truth value of the conditional statement is true if both p and q are true.

TAKE 5 MINS TO WORK ON PG.129

PG.130 IN YOUR BOOK

A **truth table** is a table that summarizes all possible truth values for a conditional statement $p \rightarrow q$. The first two columns of a truth table represent all possible truth values for the propositional variables p and q. The last column represents the truth value of the conditional statement $p \rightarrow q$.

The truth values for the conditional statement "If the measure of an angle is 32°, then the angle is acute" is shown.

The truth value of the conditional statement $p \rightarrow q$ is determined by the truth value of p and the truth value of q.

- If p is true and q is true, then $p \rightarrow q$ is true.
- If p is true and q is false, then $p \rightarrow q$ is false.
- If p is false and q is true, then $p \rightarrow q$ is true.
- If p is false and q is false, then $p \rightarrow q$ is true.

p	q	$p \rightarrow q$
the measure of an angle is 32°	**the angle is acute**	**If the measure of an angle is 32°, then the angle is acute.**
T	T	T
T	F	F
F	T	T
F	F	T

7. Consider the conditional statement: If $m\overline{AB} = 6$ inches and $m\overline{BC} = 6$ inches, then $\overline{AB} \cong \overline{BC}$.

a. What is the hypothesis p?

b. What is the conclusion q?

c. If both p and q are true, what does that mean? What is the truth value of the conditional statement if both p and q are true?

Sep 8-8:48 AM

PG.132 IN YOUR BOOK

PROBLEM 6 Rewriting Conditional Statements

For each conditional statement, draw a diagram and then write the hypothesis as the "Given" and the conclusion as the "Prove."

1. If $\overrightarrow{BD}$ bisects $\angle ABC$, then $\angle ABD \cong \angle CBD$.

   Given:

   Prove:

Homework

Finish lesson 2.1

Aug 24-2:00 PM