

Warm Up

1.) What is the next term in the sequence 1, 1, 2, 3, 5, 8, 13, ...?

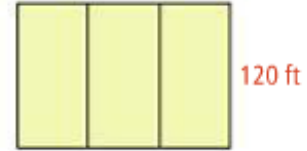
(A) 17

(B) 20

(C) 21

(D) 24

2.) A horse trainer wants to build three adjacent rectangular corrals as shown at the right. The area of each corral is 7200ft^2 . If the length of each corral is 120 ft, how much fencing does the horse trainer need to buy in order to build the corrals?



(F) 300 ft

(G) 360 ft

(H) 560 ft

(I) 840 ft

2-4: Deductive Reasoning

Obj - SWBAT use the Law of Detachment and the Law of Syllogism.

Vocabulary

Take note

Key Concept Conditional Statements

Definition

A **conditional** is an *if-then* statement.

The **hypothesis** is the part p following *if*.

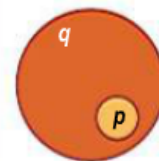
The **conclusion** is the part q following *then*.

Symbols

$p \rightarrow q$

Read as
"if p then q " or
" p implies q ."

Diagram



Take note

Key Concept Related Conditional Statements

Statement	How to Write It	Example	Symbols	How to Read It
Conditional	Use the given hypothesis and conclusion.	If $m\angle A = 15$, then $\angle A$ is acute.	$p \rightarrow q$	If p , then q .
Converse	Exchange the hypothesis and the conclusion.	If $\angle A$ is acute, then $m\angle A = 15$.	$q \rightarrow p$	If q , then p .



Property Law of Detachment

Law

If the **hypothesis** of a true conditional is true, then the **conclusion** is true.

Symbols

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

Ex. 1: What can you conclude from the given information?

a.) If there is lightning, then it is not safe to be out in the open. Marla sees lightning from the soccer field.

b.) If a figure is a square, then its sides have equal lengths. Figure ABCD has sides of equal length.

take note

Property Law of Syllogism

Symbols

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

Example

If it is July, then you are on summer vacation.

If you are on summer vacation, then you work at a smoothie shop.

You conclude: If it is July, then you work at a smoothie shop.

Ex. 2: What can you conclude from the given information?

a.) If a whole number ends in 0, then it is divisible by 10. If a whole number is divisible by 10, then it is divisible by 5.

b.) If \overrightarrow{AB} and \overrightarrow{AD} are opposite rays, then the two rays form a straight line. If two rays are opposite rays, then the two rays form a straight angle.

Ex. 3: What can you conclude from the given information?

If a river is over 4000 miles long, then it is longer than the Amazon. If a river is longer than the Amazon, then it is the longest river in the world. The Nile is 4132 miles long.

homework

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and

read sherlock holmes: A study in scarlette and pick out the deductions he used to solve the mystery