

2.1
2.2
2.3
2.5
2.7

INDUCTIVE REASONING NOTES & PRACTICE: 2.1

Conjecture:

an educated guess based on known
information (hypothesis)

Inductive Reasoning:

use specific examples to come up w/ the
next example, looking at patterns pg 80

Deductive Reasoning:

uses facts, rules, definitions or properties to
reach a logical conclusion §2.4

Counter Example:

An example that shows your conjecture is
false pg 80 # 25-30

Example:

Inductive: ① ∴ ∴ ∴ ∴ next would be?

② 1, 2, 4, 8, 16, 32

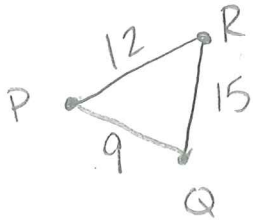
③ 4, 6, 9, 13, 18, 24

④ $1; \frac{1}{2}, \frac{1}{4}, \frac{1}{8}, \frac{1}{16}, \frac{1}{32}$

Make a conjecture based on the given information. DRAW a figure to illustrate your conjecture.

1. For points P, Q, and R, $PQ=9$, $QR=15$, and $PR=12$.

Draw:



Conjecture:

Points PQR make a triangle
Q, P, R are noncollinear

2. K is the midpoint of \overline{JL} .

Draw:



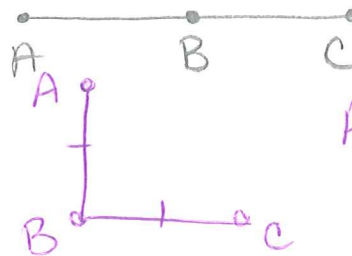
Conjecture:

~~Points J, K, + L are collinear~~
 $\overline{JK} + \overline{KL} = \overline{JL}$
 $\overline{JK} \cong \overline{KL}$ K is between J & L

Determine whether each conjecture is true or false. Give a counter example for any false conjecture.

3. Given: $\overline{AB} \cong \overline{BC}$
Conjecture: B is the midpoint of \overline{AC} .

Plan of attack: ~~True~~ False



A & C do not need to be collinear

4. Given: $(2x-1)+(2x+1)$
Conjecture: the sum of two odd integers is even.

Plan of attack: True

$2(2x) = 4x$ which will always be even

5. Given: $-(x) = -x$, where x is an integer.
Conjecture: The opposite of an integer is a negative integer.

Plan of attack: False -6 is an integer

$$-(-6) = 6$$

6. Given: $\angle ABC$ and $\angle DEF$ are supplementary.
Conjecture: $\angle ABC$ and $\angle DEF$ form a linear pair.

Plan of attack: False because a linear pair share the same vertex.

