

Conditional Sentences and Logical Reasoning 2.1  
Geometry

Write the following sentences in conditional form.

1) Flowers smell sweet.

2) People on vacation stay in hotels.

For each conditional sentence below give the: i. converse, ii. inverse, iii. contrapositive, and iv. biconditional.

If the shape is a triangle, then all of the angles add to  $180^\circ$ .

3) Converse -

4) Inverse -

5) Contrapositive -

6) Biconditional

If you want the volume of the cone, then you divide the volume of the corresponding cylinder by three.

7) Converse -

8) Inverse -

9) Contrapositive -

10) Biconditional

The exterior angles add to  $360^\circ$ , if the figure is a polygon.

11) Converse -

12) Inverse -

13) Contrapositive -

14) Biconditional

If the lines are perpendicular, then they intersect at  $90^\circ$  angles.

15) Converse -

16) Inverse -

17) Contrapositive -

18) Biconditional

If  $3x - 13 = 23$ , then  $x = 12$

- 19) Converse -
- 20) Inverse -
- 21) Contrapositive -
- 22) Biconditional

Write the converse for each sentence below. Determine whether the statement and it's converse are true or false.

- 23) If you live in Utah, then you love the snow.
- 24) If you have red hair, then you have a temper.

Give a counterexample for each conclusion.

- 25) All old people have gray hair.
- 26) All boys play football.
- 27) Soda has caffeine.
- 28) All babies are born in the hospital.

Use the following assumptions to reach a conclusion.

- 29)
  - i) Tina loves chocolate.
  - ii) M & M's have chocolate.
- 30)
  - i) Cops like donuts.
  - ii) Mike is a cop
- 31)
  - i) Sharon likes Disney movies.
  - ii) *Mulan* is a Disney movie.
- 32)
  - i) Jamie is older than David.
  - ii) David is 8 years older than Jared.
  - iii) Jared is 30 years old.
- 33)
  - i) Kate bought a blouse, skirt, jacket, and shoes.
  - ii) The skirt and the jacket cost the same amount.
  - iii) The skirt cost twice as much as the blouse.
  - iv) The shoes cost \$17 less than the blouse.
  - v) The shoes cost \$25.