

1. If a figure is a quadrilateral, then the figure has exactly four sides. Write the conditional as a true biconditional.

A figure is a quadrilateral iff the figure has exactly four sides

2. What is the inverse of the statement? If a triangle is equiangular, then the triangle has angles that all measure 60° .

(Inverse = negate hyp and conc of conditional)

If a triangle is not equiangular, then the triangle does not have angles that all measure 60° .

3. Write the two true conditionals that make up the biconditional. A figure is a pentagon if and only if the figure has exactly five sides.

1) If a figure is a pentagon, then it has exactly 5 sides.

2) If a figure has exactly 5 sides, then it is a pentagon.

4. What is the contrapositive of the statement? If a movie is a horror, then it is scary. (Flip negation of hyp and conc of conditional)

If a movie is not scary, then it is not a horror.

5. What is the conclusion of the given statement? You like the Cubs, if you like all Chicago sports. (after assumed "then")

You like the Cubs

6. Use the list of reasons below to choose the correct reason for each algebraic statement.

A. Division Property of Equality

B. Distribution Property

C. Combine like Terms

D. Addition Property of Equality

Statements	Reasons
1. $5(x-3) - 4 = 1$	1. Given
2. $5x - 15 - 4 = 1$	2. B
3. $5x - 19 = 1$	3. C
4. $5x = 20$	4. D
5. $x = 4$	5. A

precise and reversible (biconditional)

7. Are these good definitions? If not, give a counter example.
- a. A shark is an animal that swims. No - not reversible: An otter also swims
 - b. Lettuce is a green vegetable. No - not reversible: A cucumber is also a green
 - c. If a figure has four congruent sides, then it is a rhombus. No - not reversible: A ^{veggie.} square also has 4 \cong sides.
 - d. A straight angle is an angle that measures 180° .
- Yes - precise and reversible!

8. What is the hypothesis and conclusion of the following statement? If a figure is a hexagon, then the figure has exactly six sides.

(after "if") Hyp: A figure is a hexagon

(after "then") Conc: The figure has exactly 6 sides.

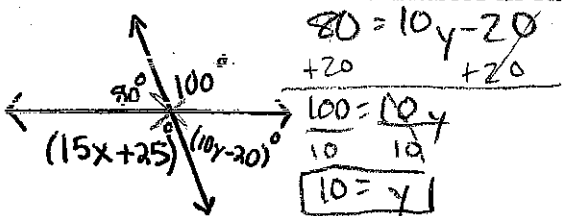
9. The two true statements needed to write a biconditional are Conditional and Converse.

10. What is the converse of the statement. If you buy a house, then you will have to make mortgage payments. (flip hyp and conc of conditional)

If you have to make mortgage payments, then you bought a house.

11. Solve for the variables in each problem. (Vertical \angle s \cong) (Supp \angle s add to 180°)

a)



$$15x + 25 = 100$$

$$\frac{15x}{15} = \frac{75}{15}$$

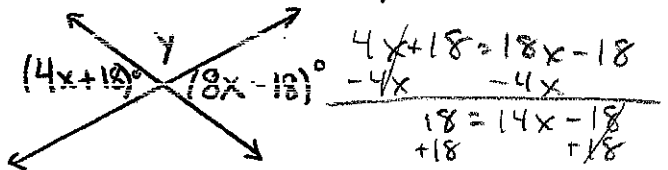
$$x = 5$$

$$80 = 10y - 20$$

$$\frac{100}{10} = \frac{10y}{10}$$

$$10 = y$$

b)



$$4x + 18 = 18x - 18$$

$$\frac{36}{14} = \frac{14x}{14}$$

$$x = 2.57$$

$$14x + 18 + y = 180$$

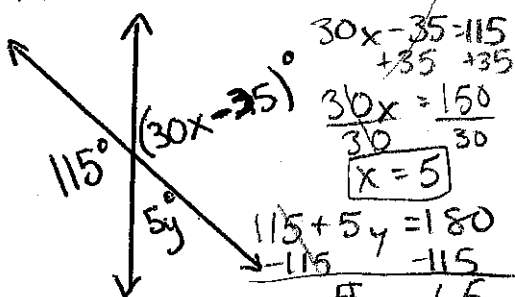
$$14(2.57) + 18 + y = 180$$

$$35.98 + 18 + y = 180$$

$$53.98 + y = 180$$

$$y = 126.02$$

c)



$$30x - 35 = 115$$

$$\frac{30x}{30} = \frac{150}{30}$$

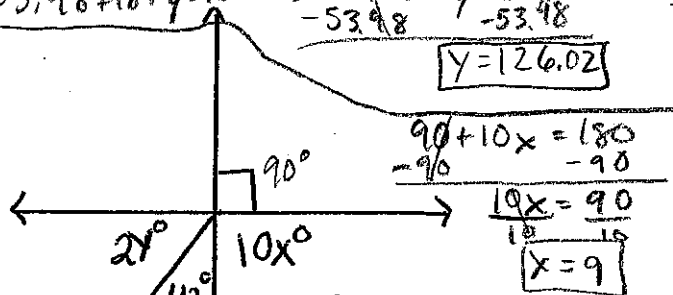
$$x = 5$$

$$115 + 5y = 180$$

$$\frac{5y}{5} = \frac{65}{5}$$

$$y = 13$$

d)



$$90 + 10x = 180$$

$$\frac{10x}{10} = \frac{90}{10}$$

$$x = 9$$

$$2y + 42 + 10x = 180$$

$$2y + 42 + 10(9) = 180$$

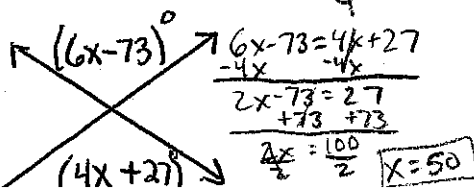
$$2y + 42 + 90 = 180$$

$$2y + 132 = 180$$

$$\frac{2y}{2} = \frac{48}{2}$$

$$y = 24$$

e)

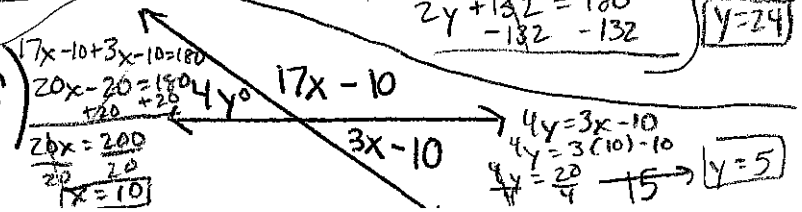


$$6x - 73 = 4x + 27$$

$$\frac{2x}{2} = \frac{100}{2}$$

$$x = 50$$

f)



$$17x - 10 + 3x - 10 = 180$$

$$\frac{20x}{20} = \frac{200}{20}$$

$$x = 10$$

$$4y = 3x - 10$$

$$4y = 3(10) - 10$$

$$\frac{4y}{4} = \frac{20}{4}$$

$$y = 5$$