

Statements and Quantifiers

Contemporary Math (MAT-130)

Decide whether each is a statement or not a statement.

1. One kilogram is equal to 2.2 pounds.
2. The earth is smaller than the moon.
3. Go to bed.
4. What day is it?
5. Some people have black hair.
6. Mind your elders.
7. $1 + 1 \geq 5$
8. You are reading a contemporary math review sheet.
9. How much wood could a woodchuck chuck if a woodchuck could chuck wood?
10. There is more than one way to skin a cat.

Decide whether each statement is compound.

11. Bob and Jack went to the store.
12. Bob went to the store and Jack went to the store.
13. I will go to work or I will stay home.
14. Today is Tuesday.
15. If it is raining then I will not play.

Write a negation for each statement.

16. Spain won the world cup.
17. I did not do that.
18. All vegetables are good for you.
19. None of the people from group 1 qualified.
20. Some people ruin it for everyone.
21. Not all politicians are liars.
22. Some birds cannot fly.
23. All the kings' men couldn't put Humpty together again.
24. No child is left behind.
25. Some animals are more equal than others.

Let p represent the statement "She is tall" and let q represent the statement "It is raining." Translate each symbolic compound statement into words.

26. $\sim p$
27. $\sim q$
28. $p \wedge q$
29. $p \vee q$
30. $\sim q \vee p$
31. $\sim p \wedge q$

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- 32. $\sim p \wedge \sim q$
- 33. $\sim(p \wedge q)$
- 34. $\sim(\sim p \vee q)$
- 35. $\sim(\sim q \wedge \sim p)$

Let p represent the statement "The sky is blue" and let q represent the statement "It is Friday."

- 36. It is not Friday.
- 37. The sky is blue and it is Friday.
- 38. It is not Friday or the sky is blue.
- 39. It is not the case that the sky is not blue and it is not Friday.
- 40. It is not the case that the sky is blue or the sky is not blue.

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Solutions:

1. Statement
2. Statement
3. Not statement
4. Not statement
5. Statement
6. Not statement
7. Statement
8. Statement
9. Not statement
10. Statement
11. Not compound
12. Compound
13. Compound
14. Not compound
15. Compound
16. Spain did not win the world cup.
17. I did do that.
18. Some vegetables are not good for you.
19. Some of the people from group 1 qualified.
20. No people ruin it for everyone.
21. All politicians are liars.
22. All birds can fly.
23. Some of the kings' men could put Humpty together again.
24. Some children are left behind.
25. No animals are more equal than others.
26. She is not tall.
27. It is not raining.
28. She is tall and it is raining.
29. She is tall or it is raining.
30. It is not raining or she is tall.
31. She is not tall and it is raining.
32. She is not tall and it is not raining.
33. It is not the case that she is tall and it is raining.
34. It is not the case that she is not tall or it is raining.
35. It is not the case that it is not raining and she is not tall.
36. $\sim q$
37. $p \wedge q$
38. $\sim q \vee p$
39. $\sim(\sim p \wedge \sim q)$
40. $\sim(p \vee \sim p)$