1. Sample answer: Formal is the two-column proof, informal can be paragraph proofs.
2. Sample answer: You can use a counterexample.
3. Sample answer: statements and reasons to justify statements
4. \(-3 > 2\) and \(3x = 12\) when \(x = 4\).
5. \(-3 > 2\) or \(3x = 12\) when \(x = 4\).
6. \(-3 > 2\), or \(3x = 12\) when \(x = 4\)
   and an equilateral triangle is also equiangular.
7. \(H: you\ eat\ an\ apple\ a\ day; C: the\ doctor\ will\ stay\ away; If\ you\ eat\ an\ apple\ a\ day,\ then\ the\ doctor\ will\ stay\ away.\)
   Converse: If the doctor stays away, then you eat an apple a day.
   Inverse: If you do not eat an apple a day, then the doctor will not stay away.
   Contrapositive: If the doctor does not stay away, then you do not eat
   an apple a day.
8. \(H: a\ stone\ is\ rolling; C: it\ gathers\ no\ moss; If\ a\ stone\ is\ rolling,\ then\ it\ gathers\ no\ moss.\)
   Converse: If a stone gathers no moss, then it is rolling.
   Inverse: If a stone is not rolling, then it gathers moss.
   Contrapositive: If a stone gathers moss, then it is not rolling.
9. Given: \(y = 4x + 9; x = 2\)
   Prove: \(y = 17\)
   Proof:
   Statements (Reasons)
   1. \(y = 4x + 9; x = 2\) (Given)
   2. \(y = 4(2) + 9\) (Substitution)
   3. \(y = 8 + 9\) (Substitution)
   4. \(y = 17\) (Substitution)
10. Given: \(AM = CN, MB = ND\)
    Prove: \(AB = CD\)
    Paragraph Proof:
    We are given that \(AM = CN, MB = ND\).
    By the Addition Property, \(AM + MB = CN + ND\).
    Using the Segment Addition Postulate, \(AB = AM + MB\),
    and \(CD = CN + ND\).
    Then, by Substitution \(AB = CD\).