Assignment 2

Due on 2020-12-11, 11:59 PM ET

1. Which pair of groups possesses a normal subgroup? (pick any two pairs for correct responses)
   - Z x Z  
   - Q x Z

2. What is the following expression equal to? (circle one)
   - x + y
   - x - y
   - x * y
   - x / y

3. Which of the following is a subgroup of the given group?
   - Z x Z
   - {e} x Z
   - Z x {e}
   - Z x Z

4. Which of the following conditions does not make {e} a normal subgroup of the given group?
   - a * {e} = {e} * a
   - a * b = b * a
   - a * {e} = b
   - a * b = b * a

5. Which is a normal subgroup of {e}?
   - {e}
   - {e} x {e}
   - Z x {e}
   - Z x Z

6. Which of the following illustrates a normal subgroup?
   - (a * b) * c = a * (b * c)
   - a * b = b * a
   - a * b = b * a
   - a * b = b * a

7. Which of the following is a normal subgroup of the given group?
   - {e} x Z
   - Z x {e}
   - Z x Z
   - Z x Z

8. Which of the following is true for the normal subgroup of the given group?
   - a * b = b * a
   - a * b = b * a
   - a * b = b * a
   - a * b = b * a

9. Which of the following is a normal subgroup of the given group?
   - {e} x Z
   - Z x {e}
   - Z x Z
   - Z x Z

10. Which of the following is a normal subgroup of the given group?
    - {e} x Z
    - Z x {e}
    - Z x Z
    - Z x Z

Exercises

11. Let G be a group and let H be a normal subgroup of G. Which of the following statements is true?
    - a * H = H * a
    - a * H = H
    - a * H = H * a
    - a * H = H

12. Let G be a group and let H be a normal subgroup of G. Which of the following statements is true?
    - a * H = H * a
    - a * H = H
    - a * H = H * a
    - a * H = H

13. Let G be a group and let H be a normal subgroup of G. Which of the following statements is true?
    - a * H = H * a
    - a * H = H
    - a * H = H * a
    - a * H = H

14. Let G be a group and let H be a normal subgroup of G. Which of the following statements is true?
    - a * H = H * a
    - a * H = H
    - a * H = H * a
    - a * H = H