```
Activity 4.1.2: Triangle Inequality Theorem
                                                                                     Activity 4.1.2: Triangle Inequality Theorem
                      Total points = 70
                                                                                                  Total points = 70
A. Answers
                                                                            A. Answers

 Yes ✓

                                  6. No √

 Yes ✓

                                                                                                              6. No √
 2. No √
                                  7. Yes √
                                                                             2. No √
                                                                                                              7. Yes √
 3. Yes ✓
                                  8. No 🗸
                                                                             3. Yes ✓
                                                                                                              8. No √
 4. Yes ✓
                                  9. No √
                                                                             Yes √
                                                                                                              9. No √
                                                                                                             10. Yes ✓
 5. Yes ✓
                                 10. Yes 🗸
                                                                             5. Yes ✓
B. Answers
                                                                           B. Answers
1. a = 5, b = 9
                                                                            1. a = 5, b = 9
a+b>c
                b+c>a
                                                                            a+b>c
                                                                                                                   a+c>b
                                       a+c>b
                                                                                            b+c>a
                                                                                                                  5 + c > 9 \checkmark
5+9>c
                9 + c > 5 \checkmark
                                                                           5+9>c
                                      5 + c > 9 \checkmark
                                                                                            9 + c > 5 \checkmark
                9-9+c>5-9
                                      5-5+c > 9-5
                                                                            14 > c \checkmark
                                                                                            9-9+c>5-9
                                                                                                                  5-5+c > 9-5
14 > c \checkmark
                c > -4 \checkmark
                                      c > 4
                                                                                            c > -4 \checkmark
\therefore 4 < c < 14
                                                                           \therefore 4 < c < 14 \checkmark
2. a = 6, c = 10
                                                                           2. a = 6, c = 10
a+b>c
                        b+c>a
                                                  a+c>b
                                                                           a+b>c
                                                                                                    b+c>a
                                                                                                                              a+c>b
6 + b > 10 \checkmark
                                                                           6 + b > 10 \checkmark
                                                  6 + 10 > b \checkmark
                                                                                                                              6 + 10 > b \checkmark
                       b + 10 > 6 \checkmark
                                                                                                    b + 10 > 6 \checkmark
                                                                                                    b+10-10>6-10 \checkmark
6-6+b > 10-6
                        b+10-10>6-10 \checkmark
                                                  16 > b \checkmark
                                                                           6-6+b > 10-6
                                                                                                                              16 > b \checkmark
                        b > -4 \checkmark
                                                                                                    b > -4 \checkmark
b > 4
                                                                           b > 4
∴ 4 < b < 16 ✓
                                                                           ∴ 4 < b < 16 ✓
3. b = 11, c = 8
                                                                           3. b = 11, c = 8
a+b>c
                        b+c>a
                                       a+c>b
                                                                            a+b>c
                                                                                                    b+c>a
                                                                                                                   a+c>b
a+11>8 \checkmark
                        11+8>a ✓
                                      a+8 > 11 \checkmark
                                                                           a+11>8 \checkmark
                                                                                                    11 + 8 > a \checkmark
                                                                                                                  a+8 > 11 \checkmark
a+11-11>8-11 \checkmark 19> a \checkmark
                                       a+8-8>11-8
                                                                            a+11-11>8-11 \checkmark 19>a \checkmark
                                                                                                                   a+8-8>11-8
a > -3
                                       a > 3
                                                                           a > -3
                                                                                                                   a > 3
∴ 3 < a < 19 ✓
                                                                           ∴ 3 < a < 19 ✓
                                                                           4. a = 3, b = 13
4. a = 3. b = 13
a+b>c
              b+c>a
                                        a+c>b
                                                                            a+b>c
                                                                                           b+c>a
                                                                                                                    a+c>b
3 + 13 > c \checkmark
              13 + c > 3
                                        3 + c > 13 \checkmark
                                                                            3 + 13 > c \checkmark
                                                                                           13 + c > 3 ✓
                                                                                                                    3 + c > 13 \checkmark
               13 - 13 + c > 3 - 13
                                       3-3+c > 13-3
                                                                            16 > c \checkmark
                                                                                           13 - 13 + c > 3 - 13
                                                                                                                   3-3+c > 13-3
16 > c \checkmark
               c > -10 \checkmark
                                        c > 10 \checkmark
                                                                                           c > -10 \checkmark
                                                                                                                    c > 10 \checkmark
                                                                           ∴ 10 < c < 16 ✓
10 < c < 16
5. a = 7, c = 11
                                                                           5. a = 7, c = 11
a+b>c
                       b+c>a
                                                  a+c>b
                                                                            a+b>c
                                                                                                    b+c>a
                                                                                                                              a+c>b
7 + b > 11 \checkmark
                        b+11 > 7
                                                  7 + 11 > b \checkmark
                                                                            7 + b > 11 \checkmark
                                                                                                    b+11 > 7
                                                                                                                              7 + 11 > b \checkmark
7 - 7 + b > 11 - 7
                       b+11-11 > 7-11
                                                  18 > b \checkmark
                                                                           7 - 7 + b > 11 - 7
                                                                                                    b+11-11 > 7-11
                                                                                                                              18 > b \checkmark
b > 4
                       b > -4 \checkmark
                                                                           b > 4
                                                                                                   b > -4 \checkmark
∴ 4 < b < 18 √
                                                                           ∴ 4 < b < 18 ✓
         Activity 4.1.2: Triangle Inequality Theorem
                                                                                     Activity 4.1.2: Triangle Inequality Theorem
                      Total points = 70
                                                                                                  Total points = 70
                                                                           A. Answers
A. Answers

 Yes ✓

    Yes √

                                  6. No √
                                                                                                              6. No √
 2. No ✓
                                  7. Yes ✓
                                                                             2. No √
                                                                                                              7. Yes √
 3. Yes ✓
                                                                             3. Yes ✓
                                  8. No 🗸
                                                                                                              8. No 🗸
                                                                                                              9. No √
                                  9. No √
                                                                             4. Yes ✓
 Yes √
                                                                             5. Yes ✓
 Yes √
                                 10. Yes ✓
                                                                                                             10. Yes ✓
B. Answers
                                                                           B. Answers
1. a = 5, b = 9
                                                                           1. a = 5, b = 9
a+b>c
                b+c>a
                                       a+c>b
                                                                            a+b>c
                                                                                            b+c>a
                                                                                                                   a+c>b
5+9>c
                9 + c > 5 \checkmark
                                      5 + c > 9
                                                                           5+9>c
                                                                                            9 + c > 5 \checkmark
                                                                                                                   5 + c > 9 \checkmark
                9-9+c > 5-9
                                      5-5+c > 9-5
                                                                                            9-9+c > 5-9
                                                                                                                  5-5+c > 9-5
14 > c \checkmark
                                                                            14 > c \checkmark
                                       c > 4 \checkmark
                c > -4 \checkmark
                                                                                            c > -4 \checkmark
                                                                                                                   c > 4
\therefore 4 < c < 14 \checkmark
                                                                           \therefore 4 < c < 14 \checkmark
2. a = 6, c = 10
                                                                           2. a = 6, c = 10
a+b>c
                        b+c>a
                                                  a+c>b
                                                                            a+b>c
                                                                                                    b+c>a
                                                                                                                              a+c>b
6 + b > 10 \checkmark
                        b + 10 > 6
                                                  6 + 10 > b \checkmark
                                                                           6 + b > 10 \checkmark
                                                                                                    b + 10 > 6
                                                                                                                              6 + 10 > b \checkmark
                        b+10-10>6-10
6-6+b > 10-6
                                                  16 > b \checkmark
                                                                           6-6+b > 10-6
                                                                                                    b+10-10>6-10
                                                                                                                              16 > b \checkmark
                        b > -4 \checkmark
                                                                           b > 4
                                                                                                   b > -4 \checkmark
b > 4
∴4 < b < 16 ✓
                                                                           ∴ 4 < b < 16 ✓
3. b = 11, c = 8
                                                                           3. b = 11, c = 8
                        b+c>a
                                                                            a+b>c
                                                                                                    b+c>a
a+b>c
                                      a+c>b
                                                                                                                  a+c>b
a+11>8 \checkmark
                        11 + 8 > a \checkmark
                                      a+8 > 11 \checkmark
                                                                            a+11>8 \checkmark
                                                                                                    11 + 8 > a \checkmark
                                                                                                                  a+8 > 11 \checkmark
a+11-11>8-11 \checkmark 19>a \checkmark
                                      a+8-8>11-8
                                                                           a+11-11>8-11 \checkmark 19>a \checkmark
                                                                                                                  a+8-8>11-8
a > -3
                                       a > 3
                                                                           a > -3
                                                                                                                   a > 3
                                                                           ∴ 3 < a < 19 ✓
∴ 3 < a < 19 ✓
4. a = 3, b = 13
                                                                           4. a = 3, b = 13
                                                                                                                    a+c>b
a+b>c
               b+c>a
                                        a+c>b
                                                                            a+b>c
                                                                                           b+c>a\checkmark
               13 + c > 3 \checkmark
                                        3 + c > 13 \checkmark
3+13>c
                                                                            3+13>c
                                                                                           13 + c > 3
                                                                                                                    3 + c > 13 \checkmark
               13-13+c>3-13 \checkmark 3-3+c>13-3 \checkmark
                                                                                           13 - 13 + c > 3 - 13
                                                                                                                   3-3+c > 13-3
16 > c \checkmark
                                                                            16 > c ✓
               c > -10 \checkmark
                                                                                           c > -10 \checkmark
                                                                                                                    c > 10 \ \checkmark
                                        c > 10 \checkmark
\therefore 10 < c < 16 \checkmark
                                                                           \therefore 10 < c < 16 \checkmark
5. a = 7, c = 11
                                                                           5. a = 7, c = 11
a+b>c
                        b+c>a
                                                  a+c>b
                                                                           a+b>c
                                                                                                    b+c>a
                                                                                                                              a+c>b
7 + b > 11 \checkmark
                                                  7 + 11 > b \checkmark
                                                                           7 + b > 11 \checkmark
                       b+11 > 7
                                                                                                    b+11 > 7
                                                                                                                              7 + 11 > b \checkmark
7 - 7 + b > 11 - 7
                        b+11-11>7-11
                                                  18 > b \checkmark
                                                                           7 - 7 + b > 11 - 7
                                                                                                    b+11-11 > 7-11
                                                                                                                              18 > b \checkmark
b > 4
                       b > -4 \checkmark
                                                                           b > 4
                                                                                                   b > -4 \checkmark
∴ 4 < b < 18 ✓
                                                                           ∴ 4 < b < 18 ✓
```