Section 3.1: Properties of Parallel Lines

1. Corresponding.
2. Alternate interior angles
3. Same-side interior
4. Alternate interior angles
5. Same-side interior
6. Corresponding
7. \(1=100\) because they are alternate interior angles
   \(2=100\) because they are vertical angles
8. \(1=75\) because they are alternate interior angles
   \(2=75\) because they are vertical angles
9. \(1=135\) because they are corresponding
   \(2=135\) because they are alternate interior angles
10. \(X=103; 103\ and \ 77\)
11. \(X=24; 12\ and \ 168\)
12. \(X=30; 85\ and \ 85\)
13. \(1&5, 4&7, 2&6, \ and \ 3&8\)
14. \(4&6\ and \ 3&5\)
15. \(4&5\ and \ 3&6\)

Section 3.2: Proving Lines Parallel

1. \(N \parallel O\) because 70 and 110 are supplementary same-side interior angles
2. No sides are parallel
3. \(AD \parallel BC\) because 55 and 125 are supplementary same-side interior angles
4. \(TR \parallel UH\) because congruent corresponding angles
5. \(EH \parallel FI\) because congruent corresponding angles
6. \(a \parallel b\) because 79 and 101 are supplementary same-side interior angles
7. \(x=83\)
8. \(x=90\)
9. \(x=140\)
10. \(x=70\)
11. \(x=38\)
12. \(x=48\)
13. a. Same-side interior
    b. QR
    c. TS
    d. Same-side interior
    e. Same-Side Interior Angle Theorem
    f. TS
    g. Converse of the alternate interior angle theorem
14. a. Alternate interior angles are \(\cong\)
    b. Vertical angles are \(\cong\)
    c. Transitive property

Section 3.3: Parallel and Perpendicular Lines

1. \(x=125\)
2. \(m=129\)
3. \(x=35, y=145, z=25\)
4. \(y=69\)
5. \(x=140\)
6. \(a=55, b=97, c=83\)
7. \(n=143\)
8. \(p=136\)
9. \(t=62, v=118, w=37\)
10. \(50\)
11. \(571\)
12. \(88\)
13. \(136\)
14. \(3=22, 4=22, 5=88\)
15. \(1=33, 2=52\)
Section 3.4: Lines in the Coordinate Plane

1. \[ y = \frac{1}{3}x - 7 \]
2. \[ y = -2x + 12 \]
3. \[ x = 0 \quad y = 0 \]
4. \[ y = \frac{3}{5}x + 6 \]
5. \[ y = 7 \]
6. \[ y = -\frac{3}{2}x + \frac{13}{2} \]
7. \[ y = -\frac{4}{3}x + 24 \]
8. \[ y = \frac{1}{3}x - 7 \]
9. \[ y = -2x + 12 \]
10. \[ y = -3x + 13 \]
11. \[ y = 1x + 4 \]
12. \[ y = \frac{3}{5}x + 6 \]
13. \[ y = 7 \]
14. \[ y = -\frac{3}{2}x + \frac{13}{2} \]
15. \[ y = -\frac{4}{3}x + 24 \]