

LESSON 60

1. Let x = first even integer
 $x + 2$ = second even integer
 $x + 4$ = third even integer
Sum = 12, so $x + (x + 2) + (x + 4) = 12$.
Solve for x , and you get $x = 2$.
The numbers are 2, 4 and 6.
2. Let x = width of the rectangle
 $2x$ = length of the rectangle
Perimeter = $2(\text{width} + \text{length}) = 18$,
so $2(x + 2x) = 18$.
Solve for x , and you get $x = 3$.
The rectangle is 3 feet by 6 feet.
3. $c^2 = 3^2 + 4^2$
 $c^2 = 25$
 $c = \pm 5$
 $c > 0$, so $c = 5$.
The hypotenuse is 5 in.
4. $13^2 = 5^2 + b^2$
 $b^2 = 144$
 $b = \pm 12$
 $b > 0$, so $b = 12$.
The other leg is 12 cm.
5. Let x = smaller positive integer
 $x + 3$ = larger positive integer
Product = 40, so $x(x + 3) = 40$.
Solve for x , and you get $x = 5$ and $x = -8$.
The two positive integers are 5 and 8.
6. Let x = side length of the square
By The Pythagorean Theorem, $x^2 + x^2 = (5\sqrt{2})^2$.
Solve for x , and you get $x = 5$ and $x = -5$.
The length of each side is 5 cm.
7. Let x = width of the rectangle
 $x + 4$ = length of the rectangle
Area = (width)(length) = 96, so $x(x + 4) = 96$.
Solve for x , and you get $x = 8$ and $x = -12$.
The rectangle is 8 cm by 12 cm.
8. Let x = smaller positive integer
 $x + 1$ = larger positive integer
Sum of squares = 61, so $x^2 + (x + 1)^2 = 61$.
Solve for x , and you get $x = 5$ and $x = -6$.
The two positive integers are 5 and 6.
9. Let x = first positive integer
 $10 - x$ = second positive integer
Sum of squares = 58, so $x^2 + (10 - x)^2 = 58$.
Solve for x , and you get $x = 3$ and $x = 7$.
The two positive integers are 3 and 7.

10. Let x = smaller positive integer
 $x + 3$ = larger positive integer
Smaller + square of larger = 39, $x + (x + 3)^2 = 39$
Solve for x , and you get $x = 3$ and $x = -10$.
The two positive integers are 3 and 6.
11. Let x = length of the rectangle
By The Pythagorean Theorem, $5^2 + x^2 = 13^2$.
Solve for x , and you get $x = 12$ and $x = -12$.
The height of the rectangle is 12 cm.
12. Let x = hypotenuse of the triangle
 $x - 1$ = first leg of the triangle
 $x - 2$ = second leg of the triangle
By The Pythagorean Theorem,
 $(x - 1)^2 + (x - 2)^2 = x^2$
Solve for x , and you get $x = 1$ and $x = 5$.
The dimensions are 5 cm, 4 cm, and 3 cm.
13. Let x = width of the rectangle
 $3x - 2$ = length of the rectangle
Area = (width)(length) = 65, so $x(3x - 2) = 65$.
Solve for x , and you get $x = 5$ and $x = -13/3$.
The dimensions are 5 cm and 13 cm.
14. Perimeter = $2(\text{width} + \text{length}) = 36$,
so width + length = 18.

Let x = width of the rectangle
 $18 - x$ = length of the rectangle
Area = (width)(length) = 80, so $x(18 - x) = 80$.
Solve for x , and you get $x = 8$ and $x = 10$.
The dimensions are 8 in and 10 in.
15. Let x = legs of the triangle
By The Pythagorean Theorem, $x^2 + x^2 = (4\sqrt{2})^2$.
Solve for x , and you get $x = 4$ and $x = -4$.
The perimeter is $8 + 4\sqrt{2}$ feet.
16. Let x = width of the strip
 $6 + 2x$ = width of the new rectangle
 $4 + 2x$ = length of the new rectangle
New area = original area + 24,
so $(6 + 2x)(4 + 2x) = 6(4) + 24$.
Solve for x , and you get $x = 1$ and $x = -6$.
The width of the strip is 1 cm.
17. x = distance traveled by car B
 $x + 10$ = distance between
the two cars

By The Pythagorean Theorem,
 $20^2 + x^2 = (x + 10)^2$
Solve for x , and you get $x = 15$.
Car B traveled 15 miles.

