

Algebra: One-Step

Algebra · Grade 6

★ Hard · 10 Questions

Solve each problem. Show your work in the space provided. Write your answer on the line.

1. A rectangle's length is 5 more than twice its width. Perimeter is 52 cm. Find the dimensions.

Answer: _____

2. Solve: $|3x - 6| = 12$

Answer: _____

3. Two consecutive even integers have a sum of 86. Find the integers.

Answer: _____

4. A train travels at 80 km/h. Write and solve an equation to find how long it takes to travel 360 km.

Answer: _____

5. The sum of three consecutive integers is 90. Find the integers.

Answer: _____

6. Solve for x and y : $x + y = 10$ and $x - y = 4$

Answer: _____

7. A number is 4 less than 3 times another. Their sum is 28. Find both numbers.

Answer: _____

8. Write and solve: 5 less than a number squared equals 44.

Answer: _____

9. The difference between a number and its square is 56. Find the positive number.

Answer: _____

10. Solve: $2x/3 + x/4 = 22$

Answer: _____

Answer Key

Algebra: One-Step — Hard

1. **Width = 7 cm; Length = 19 cm**

$$L=2w+5. 2(L+w)=52. 2(3w+5)=52. w=7, L=19.$$

2. **$x = 6$ or $x = -2$**

$$3x-6=12 \rightarrow x=6. 3x-6=-12 \rightarrow x=-2.$$

3. **42 and 44**

$$n+(n+2)=86. 2n=84. n=42.$$

4. **4.5 hours**

$$d=rt. 360=80t. t=4.5.$$

5. **29, 30, 31**

$$3n+3=90. n=29.$$

6. **$x = 7, y = 3$**

$$\text{Add: } 2x=14, x=7. \text{ Then } y=3.$$

7. **8 and 20**

$$n \text{ and } 3n-4. n+(3n-4)=28. 4n=32. n=8, \text{ other}=20.$$

8. **$x = 7$ or $x = -7$**

$$x^2-5=44. x^2=49. x=\pm 7.$$

9. **8**

$$n^2-n=56. n^2-n-56=0. (n-8)(n+7)=0. n=8.$$

10. **$x = 24$**

$$\text{Multiply by 12: } 8x+3x=264. 11x=264. x=24.$$