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Solve each of the following equations. Show your work neatly organized.

1. $x^2 + 3x - 10 = 0$

2. $x^2 - 8x + 15 = 0$

3. $3x^2 - 8x - 3 = 0$

4. $6x^2 + 13x + 5 = 0$

5. $4x^2 - 25 = 0$

6. $3x^2 - 7x = 0$

7. $x^2 = x + 2$

8. $x^2 + 5x = 14$

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Solve each of the following equations. Show your work neatly organized.

9. $9x^2 + 1 = 6x$

10. $2x^2 + 5x = 7$

11. $9x^2 = 6x$

12. $x^2 = 49$

13. $x(x + 1) = 2(2x + 5)$

14. $(2x + 5)(x + 1) = 20$

15. $4x(x - 2) = 3(x + 1)$

16. $(3x + 2)^2 = x^2 + 22x + 7$

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Solve each of the following problems algebraically. Show your complete solution neatly organized in the space provided.

17. One number is two more than five times another. Their product is three. What are the numbers.

18. One number is equal to the square of another. Their sum is twelve. What are the numbers?

19. The length of a rectangle is five inches more than twice its width. The area of the rectangle is 25 square inches. What are the dimensions of the rectangle?

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Solve each of the following problems algebraically. Show your complete solution neatly organized in the space provided.

20. One leg of a right triangle is seven inches longer than the other. The length of the hypotenuse is two inches less than three times the length of the shorter leg. Find the length of each side of the triangle.

21. The length of the hypotenuse of a right triangle is three inches less than twice the length of the shorter leg. The length of the longer leg is three inches more than the length of the shorter leg. Find the length of each side of the triangle.

22. A rectangular photograph that is 12 inches long and 9 inches wide is surrounded by a border of uniform width. Find the width of the border if its area is 72 square inches.