Homework #16

Solve:

1. $x^2 - 5x - 14 = 0$

2. $x^2 = 3x$

3. $5x + 9 = 2x + 3$

4. $m + 2 = \dfrac{m - 8}{4}$

5. $x + 2 = \dfrac{x + 6}{x}$

6. $x + 30 = x^2$

7. $\sqrt{x + 5} = 3$

8. $9(2 - x) = 4 + 3x$

Solve:

9. $(x - 1)^2 = 4$

10. $4 = \dfrac{x + 2}{x + 5}$

11. $x(x + 8) = 33$

12. $\dfrac{10 - 2x}{x + 1} = x$

13. $8p = p^2$

14. $\dfrac{5}{x} = \dfrac{4}{x + 1}$

15. $a^2 = 1$

16. $(x + 3)(x + 4) = x(x + 1)$

Make x the subject:

17. $y = \dfrac{48}{x + 1}$

18. $y = \sqrt{2 - x}$

19. $y > 5x + 3$

20. $y = {}^-0.5x - 5$

21. $y = x^2 + 7$

22. $\dfrac{3}{x + 2} = \dfrac{4}{y - 1}$

23. $y = \dfrac{2}{x^2}$

24. $y = (x + 2)^3 - 6$

Answers Homework #16

Solve:

1. $x^2 - 5x - 14 = 0$
   $(x - 7)(x + 2) = 0$
   $x = 7$ or $x = -2$

2. $x^2 = 3x$
   $x^2 - 3x = 0$
   $x(x - 3) = 0$
   $x = 0$ or $x = 3$

3. $5x + 9 = 2x + 3$
   $3x = -6$
   $x = -2$

4. $m + 2 = \dfrac{m - 8}{4}$
   $4m + 8 = m - 8$
   $3m = -16$
   $m = {}^{-16}/_3$

5. $x + 2 = \dfrac{x + 6}{x}$
   $x^2 + 2x = x + 6$
   $x^2 + x - 6 = 0$
   $(x + 3)(x - 2) = 0$
   $x = -3$ or $x = 2$

6. $x + 30 = x^2$
   $0 = x^2 - x - 30$
   $0 = (x - 6)(x + 5)$
   $x = 6$ or $x = -5$

7. $\sqrt{x + 5} = 3$
   $x + 5 = 3^2$
   $x = 4$

8. $9(2 - x) = 4 + 3x$
   $18 - 9x = 4 + 3x$
   $14 = 12x$
   $x = {}^{14}/_{12} = {}^{7}/_6$

Solve:

9. $(x - 1)^2 = 4$
   $x^2 - 2x - 3 = 0$
   $(x - 3)(x + 1) = 0$
   $x = 3$ or $x = -1$

10. $4 = \dfrac{x + 2}{x + 5}$
    $4x + 20 = x + 2$
    $3x = -18$
    $x = -6$

11. $x(x + 8) = 33$
    $x^2 + 8x - 33 = 0$
    $(x + 11)(x - 3) = 0$
    $x = -11$ or $x = 3$

12. $\dfrac{10 - 2x}{x + 1} = x$
    $10 - 2x = x^2 + x$
    $0 = x^2 + 3x - 10$
    $0 = (x + 5)(x - 2)$
    $x = -5$ or $x = 2$

13. $8p = p^2$
    $0 = p^2 - 8p$
    $p(p - 8) = 0$
    $p = 0$ or $p = 8$

14. $\dfrac{5}{x} = \dfrac{4}{x + 1}$
    $5x + 5 = 4x$
    $x = -5$

15. $a^2 = 1$
    $a^2 - 1 = 0$
    $(a + 1)(a - 1) = 0$
    $a = -1$ or $a = 1$

16. $(x + 3)(x + 4) = x(x + 1)$
    $x^2 + 7x + 12 = x^2 + x$
    $6x = -12$
    $x = -2$

Make x the subject:

17. $y = \dfrac{48}{x + 1}$
    $(x + 1)y = 48$
    $x = \dfrac{48}{y} - 1$

18. $y = \sqrt{2 - x}$
    $y^2 = 2 - x$
    $x = 2 - y^2$

19. $y > 5x + 3$
    $y - 3 > 5x$
    $x < \dfrac{y - 3}{5}$

20. $y = {}^{-}0.5x - 5$
    $y + 5 = -0.5x$
    $x = {}^{-}2y - 10 \left(= \dfrac{y + 5}{-0.5}\right)$

21. $y = x^2 + 7$
    $y - 7 = x^2$
    $x = \pm\sqrt{y - 7}$

22. $\dfrac{3}{x + 2} = \dfrac{4}{y - 1}$
    $3(y - 1) = 4(x + 2)$
    $\dfrac{3y - 3}{4} = x + 2$
    $x = \dfrac{3y - 3}{4} - 2$
    $x = \dfrac{3y - 11}{4}$

23. $y = \dfrac{2}{x^2}$
    $x^2 = \dfrac{2}{y}$
    $x = \pm\sqrt{{}^2/_y}$

24. $y = (x + 2)^3 - 6$
    $y + 6 = (x + 2)^3$
    $\sqrt[3]{y + 6} = x + 2$
    $x = \sqrt[3]{y + 6} - 2$