Homework 18a

Solve:

1. $5(x + 6) = 4$

2. $(x + 5)(x + 9) = 0$

3. $5(5x - 3) = 40$

4. $10x - 1 < 12x + 4$

5. $x^2 = 80 + 2x$

6. $p^2 = 16p - 60$

7. $9 < 6x - 4$

8. $2 - x > \dfrac{x + 2}{8}$

9. $3 - 5x > -8$

10. $6 - 4x = 1$

11. $k^2 = 4k + 12$

12. $2x - 8 < 7x - 10$

13. $\dfrac{x}{4} = x + 3$

14. $x^2 = 3x + 88$

15. $7(4 - x) < -3$

16. $x + 11 > \dfrac{x - 9}{x}$

17. $6g - 4 = 9g + 9$

18. $(x + 2)^2 = x(x - 5)$

19. $\dfrac{x + 2}{8} = \dfrac{3 - x}{x}$

20. $(x + 1)^4 = 16$

21. $(x + 4)^2 = 36$

22. $8 - 10x = 3$

23. $\dfrac{x + 2}{3} = 5$

24. $\dfrac{20}{x} + \dfrac{x}{5} = 4$

Answers: Homework 18a

Solve:

1. $5(x + 6) = 4$
   $5x + 30 = 4$
   $x = {}^{-26}/_5$

2. $(x + 5)(x + 9) = 0$
   $x = -5$ or $x = -9$

3. $5(5x - 3) = 40$
   $25x - 15 = 40$
   $x = {}^{55}/_{25} = {}^{11}/_5$

4. $10x - 1 < 12x + 4$
   $-5 < 2x$
   $x > -2.5$

5. $x^2 = 80 + 2x$
   $x^2 - 2x - 80 = 0$
   $(x + 8)(x - 10) = 0$
   $x = -8$ or $x = 10$

6. $p^2 = 16p - 60$
   $p^2 - 16p + 60 = 0$
   $(p - 6)(p - 10) = 0$
   $p = 6$ or $p = 10$

7. $9 < 6x - 4$
   $13 < 6x$
   $x > {}^{13}/_6$

8. $2 - x > \dfrac{x + 2}{8}$
   $16 - 8x > x + 2$
   $14 > 9x$
   $x < {}^{14}/_9$

9. $3 - 5x > -8$
   $-5x > -11$
   $11 > 5x$
   $x < {}^{11}/_5$

10. $6 - 4x = 1$
    $-4x =- 5$
    $x = {}^{-5}/{-4} = {}^5/_4$

11. $k^2 = 4k + 12$
    $k^2 - 4k - 12 = 0$
    $(k + 2)(k - 6) = 0$
    $k = -2$ or $k = 6$

12. $2x - 8 < 7x - 10$
    $18 < 5x$
    $x < {}^{18}/_5$

13. $\dfrac{x}{4} = x + 3$
    $x = 4x + 12$
    $-3x = 12$
    $x = -4$

14. $x^2 = 3x + 88$
    $x^2 - 3x - 88 = 0$
    $(x + 8)(x - 11) = 0$
    $x = -8$ or $x = 11$

15. $7(4 - x) < -3$
    $-7x < -31$
    $31 < 7x$
    $x > {}^{31}/_7$

16. $x + 11 > \dfrac{x - 9}{x}$
    $x^2 + 10x + 9 = 0$
    $(x + 9)(x + 1) = 0$
    $x = -9$ or $x = -1$

17. $6g - 4 = 9g + 9$
    $-13 = 3g$
    $g = {}^{-13}/_3$

18. $(x + 2)^2 = x(x - 5)$
    $x^2 + 4x + 4 = x^2 - 5x$
    $4x + 4 = -5x$
    $9x = -4$
    $x = {}^{-4}/_9$

19. $\dfrac{x + 2}{8} = \dfrac{3 - x}{x}$
    $x^2 + 2x = -24 - 8x$
    $x^2 + 10x + 24 = 0$
    $x = -6$ or $x = -4$

20. $(x + 1)^4 = 16$
    $x + 1 = 2$ as $2^4 = 16$
    $x = 1$

21. $(x + 4)^2 = 36$
    $x + 4 = \pm\sqrt{36}$
    $x = -10$ or $x = 2$

22. $8 - 10x = 3$
    $-10x = -5$
    $x = 0.5$

23. $\dfrac{x + 2}{3} = 5$
    $x + 2 = 5 \times 3$
    $x = 15 - 12$

24. $\dfrac{20}{x} + \dfrac{x}{5} = 4$
    $\dfrac{100}{5x} + \dfrac{x^2}{5x} = \dfrac{20x}{5x}$
    $x^2 - 20x + 100 = 0$
    $(x - 10)^2 = 0$
    $x = 10$