Section 3.1 – Practice Questions

EMERGING LEVEL QUESTIONS

Use the Addition and Subtraction Principle. ISOLATE THE VARIABLE, show steps.

1. $w + 4 = 7$
   $-4 \quad -4$
   $\boxed{w = 3}$

2. $x + 16 = -4$
   $-16 \quad -16$
   $\boxed{x = -20}$

3. $t - 12 = -4$
   $+12 \quad +12$
   $\boxed{t = 8}$

4. $t + 9 = -3$
   $-9 \quad -9$
   $\boxed{t = -12}$

5. $k - 6 = -8$
   $+6 \quad +6$
   $\boxed{k = -2}$

6. $w - 3 = -8$
   $+3 \quad +3$
   $\boxed{w = -5}$

7. $z + 2 = 5$
   $-2 \quad -2$
   $\boxed{z = 3}$

8. $8 = j + 7$
   $-7 \quad -7$
   $\boxed{j = 1}$

9. $r + 5 = 12$
   $-5 \quad -5$
   $\boxed{r = 7}$

10. $12 = l - 4$
    $+4 \quad +4$
    $\boxed{l = 16}$

11. $15 = r + 12$
    $-12 \quad -12$
    $\boxed{r = 3}$

12. $x + 23 = -7$
    $-23 \quad -23$
    $\boxed{x = -30}$

13. $j + 7 = -4$
    $-7 \quad -7$
    $\boxed{j = -11}$

14. $23 + f = -17$
    $-23 \quad -23$
    $\boxed{f = -40}$

15. $j + 5 = -11$
    $-5 \quad -5$
    $\boxed{j = -16}$

Use the Multiplication and Division Principle. ISOLATE THE VARIABLE, show steps.

16. $\frac{3x}{3} = \frac{12}{3}$

$\boxed{x = 4}$

17. $\frac{2x}{2} = \frac{24}{2}$

$\boxed{x = 12}$

18. $\frac{4t}{4} = \frac{-13}{4}$

$\boxed{t = -13/4}$

19. $\frac{-3t}{-3} = \frac{-6}{-3}$

$\boxed{t = 2}$

20. $\frac{-4r}{-4} = \frac{12}{-4}$

$\boxed{r = -3}$

21. $\frac{-12m}{-12} = \frac{156}{-12}$

$\boxed{m = -13}$

22. $\frac{3t}{3} = \frac{17}{3}$

$\boxed{t = \frac{17}{3}}$

23. $\frac{-x}{-1} = \frac{4}{-1}$

$\boxed{x = -4}$

24. $\frac{7h}{7} = \frac{2}{7}$

$\boxed{h = 2/7}$

25. $7 \cdot \frac{z}{7} = 9 \cdot 7$

$\boxed{z = 63}$

26. $6 \cdot \frac{k}{6} = -2 \cdot 6$

$\boxed{k = -12}$

27. $8 \cdot \frac{t}{8} = 4 \cdot 8$

$\boxed{t = 32}$

28. $3 \cdot \frac{r}{3} = -3 \cdot 3$

$\boxed{r = -9}$

29. $-4 \cdot -\frac{j}{4} = -6 \cdot -4$

$\boxed{j = 24}$

30. $6 \cdot \frac{r}{6} = 35 \cdot 6$

$\boxed{r = 210}$

31. $-2 \cdot -\frac{t}{2} = 5 \cdot -2$

$\boxed{t = -10}$

32. $7 \cdot \frac{a}{7} = 0 \cdot 7$

$\boxed{a = 0}$

33. $-7 \cdot -\frac{w}{7} = -4 \cdot 7$

$\boxed{w = 28}$

Use two-step processes to solve the following

34. $3x - 5 = 10$

$+5 \quad +5$

$\frac{3x}{3} = \frac{15}{3}$

$\boxed{x = 5}$

35. $-2x + 5 = 7$

$-5 \quad -5$

$\frac{-2x}{-2} = \frac{2}{-2}$

$\boxed{x = -1}$

36. $-4r - 4 = -4$

$+4 \quad +4$

$\frac{-4r}{-4} = \frac{0}{-4}$

$\boxed{r = 0}$

37. $6x + 12 = -12$

$-12 \quad -12$

$\frac{6x}{6} = \frac{-24}{6}$

$\boxed{x = -4}$

38. $3x - 7 = -5$

$+7 \quad +7$

$\frac{3x}{3} = \frac{2}{3}$

$\boxed{x = 2/3}$

39. $2x + 3 = 4$

$-3 \quad -3$

$\frac{2x}{2} = \frac{1}{2}$

$\boxed{x = \frac{1}{2}}$

40. $-2r - 5 = 9$

$+5 \quad +5$

$\frac{-2r}{-2} = \frac{14}{-2}$

$\boxed{r = -7}$

41. $6x + 3 = -4$

$-3 \quad -3$

$\frac{6x}{6} = \frac{-7}{6}$

$\boxed{x = -\frac{7}{6}}$

42. $12x - 54 = 6$

$+54 \quad +54$

$\frac{12x}{12} = \frac{60}{12}$

$\boxed{x = 5}$

43. $-7q - 2 = -9$

$+2 \quad +2$

$\frac{-7q}{-7} = \frac{-7}{-7}$

$\boxed{q = 1}$

44. $3r - 5 = 7$

$+5 \quad +5$

$\frac{3r}{3} = \frac{12}{3}$

$\boxed{r = 4}$

45. $-x + 3 = 8$

$-3 \quad -3$

$\frac{-x}{-1} = \frac{5}{-1}$

$\boxed{x = -5}$

PROFICIENT LEVEL QUESTIONS

46. $3 \cdot \frac{2}{3}x = 8 \cdot 3$

$\frac{2x}{2} = \frac{24}{2}$

$\boxed{x = 12}$

47. $-5 \cdot -\frac{2}{5}x = 4 \cdot -5$

$\frac{2x}{2} = \frac{-20}{2}$

$\boxed{x = -10}$

48. $r \cdot \frac{2}{r} = 4 \cdot r$

$\frac{2}{4} = \frac{4r}{4}$

$\boxed{\frac{1}{2} = r}$

49. $-7 \cdot -\frac{3}{7}x = 5 \cdot -7$

$\frac{3x}{3} = \frac{-35}{3}$

$\boxed{x = \frac{-35}{3}}$

50. $-7 \cdot -\frac{6}{7}x = 2 \cdot -7$

$\frac{6x}{6} = \frac{-14}{6}$

$x = -14/6$

$\boxed{x = -\frac{7}{3}}$

51. $5 \cdot \frac{2}{5}t = 13 \cdot 5$

$\frac{2t}{2} = \frac{65}{2}$

$\boxed{t = \frac{65}{2}}$

EXTENDING LEVEL QUESTIONS

In each case, solve for the variable a

52. $ab + c = d$

$-c \quad -c$

$\frac{ab}{b} = \frac{d-c}{b}$

$\boxed{a = \frac{d-c}{b}}$

53. $-a + b = -d$

$-b \quad -b$

$\frac{-a}{-1} = \frac{-d-b}{-1}$

$\boxed{a = d + b}$

54. $a \cdot \frac{b}{a} = cd \cdot a$

$\frac{b}{cd} = \frac{acd}{cd}$

$\boxed{a = \frac{b}{cd}}$