CHAPTER 6 - EQUATIONS AND INEQUALITIES

6.1 SOLVING TYPE I EQUATIONS

When solving **Type I** equations algebraically, we use the opposite operation that is displayed to determine what value our **variable** (letter) has. Addition is the opposite operation of subtraction, and multiplication is the opposite operation of division. There are 4 kinds of Type I equations that we will be solving and the examples below show how each type is solved.

TYPE 1 (ADDITION)

$$x + 6 = 8$$
$$x = 8 - 6$$
$$x = 2$$

TYPE 1 (SUBTRACTION)

$$x - 8 = 4$$
$$x = 4 + 8$$
$$x = 12$$

TYPE 1 (MULTIPLICATION)

$$5x = -35$$
$$\frac{5x}{5} = \frac{-35}{5}$$
$$x = -7$$

TYPE 1 (DIVISION)

$$\frac{x}{3} = -8$$
$$\frac{x}{3} = \frac{-8}{1}$$
$$x = -24$$
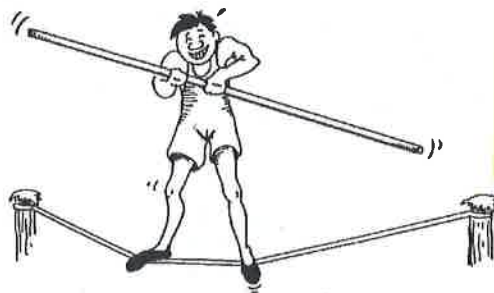
(Note that in each case above we removed the number beside the letter by using the opposite operation. But when we have a division type question we do a special type of opposite operation called **cross-multiplication***.)*

A. Solve the following showing all steps.

1. $x + 6 = 12$
   6

2. $x - 7 = 8$
   15

3. $\dfrac{x}{6} = 9$
   54

4. $5x = 30$
   6

5. $x + 10 = 4$
   −6

6. $\dfrac{x}{-3} = -6$
   18

7. $-5x = 20$
   −4

8. $\dfrac{5}{8}x = -9$
   −14.4

9. $4 + x = 13$
   9

10. $x - 8 = -30$
    −22

11. $\dfrac{x}{-3} = -3$
    9

12. $14x = -3$
    $-\dfrac{3}{14}$

13. $5x = -76$
    −15.2

14. $7x = \dfrac{-3}{4}$
    $-\dfrac{3}{28}$

15. $-7 + x = 13$
    20

16. $x + \dfrac{1}{2} = \dfrac{3}{4}$
    $\dfrac{1}{4}$

17. $-9x = -16$
    $1\dfrac{7}{9}$

18. $\dfrac{-3}{4}x = 12$
    −16

19. $\dfrac{x}{0.3} = -0.8$
    −0.24

20. $x + 1.6 = -0.07$
    −1.67

21. $x + 6.3 = -14$
    −20.3

22. $\dfrac{4}{3}x = 7$
    $5\dfrac{1}{4}$

23. $0.01x = -0.01$
    −1

24. $\dfrac{x}{1.2} = 5.3$
    6.36

25. $x - 10 = 0.003$
    10.003

26. $\dfrac{7}{3}x = \dfrac{3}{4}$
    $\dfrac{9}{28}$ or 0.321···

27. $x - 9 = -30$
    −21

28. $x + 9 = -1.6$
    −10.6