

## S-5

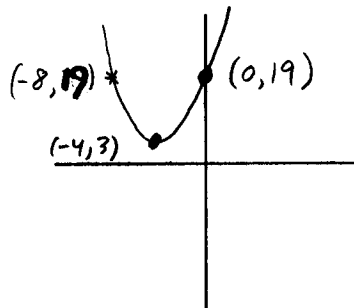
## Summary of Chapter Five.

Fill in the blanks with the correct word or phrase.

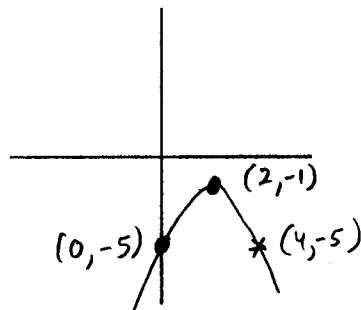
- The graph of  $y = x^2$  is in the shape of a parabola.
- The bottom-most or top-most point of a parabola is called the vertex.
- Any function of the form  $y = \pm(x - A)^2 + B$  has its graph in the shape of a parabola with vertex at the point  $(A, B)$ .
- It opens upwards if the sign in front of the  $(x - A)^2$  term is a + sign and downwards if it is a - sign.
- The  $y$ -intercept of the graph can be found by putting in the value of 0 for  $x$  and then computing the  $y$ -value.

Make a sketch of each parabola by plotting only the vertex and the  $y$ -intercept. Be sure to label your points. Check your sketch by finding the point symmetric to the  $y$ -intercept.

6.  $y = (x + 4)^2 + 3$



7.  $y = -(x - 2)^2 - 1$



Rewrite each expression in the form  $ax^2 + bx + c$ .

$$8. \quad (x + 1)(x + 5) = x^2 + 5x + 1x + 5 \\ = x^2 + 6x + 5$$

$$9. \quad (x + 3)^2 - 4 = (x + 3)(x + 3) - 4 \\ = x^2 + 3x + 3x + 9 - 4 \\ = x^2 + 6x + 5$$

Translate the following statement into an algebraic expression. Be sure to state what quantity each letter represents.

10. The product of Joe's weekly income with ten dollars more than he makes is the amount that Jan makes each week.

let  $x$  be Joe's \$  
 $y$  be Jan's \$

$$y = x \cdot (x + 10)$$