Name: _____ **Date:** _____ **#70 Perfect Square Trinomials**

Fill in the blank to make a perfect square trinomial. Then write the binomial that was squared.

1. $x^2 + 14x +$ 49
$a=1$ or 1^2 $\frac{14}{2(1)}=7$ $(x+7)^2$
$b=14$
$c=7^2$ or 49

2. $x^2 - 36x +$ 324
$a=1$ or 1^2 $\frac{-36}{2(1)}=-18$ $(x-18)^2$
$b=-36$
$c=(-18)^2$ or 324

3. $x^2 + 9x +$ 81/4
$a=1$ or 1^2 $\frac{9}{2(1)}=\frac{9}{2}$ $(x+\frac{9}{2})^2$
$b=9$
$c=(\frac{9}{2})^2$ or $\frac{81}{4}$

4. $x^2 - 3x +$ $\frac{9}{4}$
$a=1$ $\frac{-3}{2(1)}=\frac{-3}{2}$ $(x-\frac{3}{2})^2$
$b=-3$
$c=(\frac{-3}{2})^2$ or $\frac{9}{4}$

For each quadratic in standard form below:

- If it is a perfect square trinomial, write it in vertex form by writing the binomial that was squared.
- If it is not a perfect square trinomial, explain why it is not.

5. $f(x) = x^2 + 4x + 4$
$a=1$ or 1^2 $2\cdot1\cdot2=4$
$b=4$
$c=4$ or 2^2
Yes
$f(x)=(x+2)^2$

6. $g(x) = x^2 + 22x + 121$
$a=1$ or 1^2 $2\cdot1\cdot11=22$
$b=22$
$c=121$ or 11^2
Yes
$g(x)=(x+11)^2$

7. $h(x) = x^2 - 6x + 25$
$a=1$ or 1^2 $2\cdot1\cdot5=10$
$b=-6$
$c=25$ or 5^2
Not a perfect sq. trinomal b/c $b=-6$ & $-6\neq10$

8. $j(x) = x^2 - 20x + 100$
$a=1$ or 1^2 $b=-20$ $c=100$ or 10^2 or $(-10)^2$
$2\cdot1\cdot10=20$
Yes
$j(x)=(x-10)^2$

9. $h(t) = t^2 + 14t + 49$
$a=1$ or 1^2
$b=14$
$c=49$ or 7^2
$2\cdot1\cdot7=14$
Yes
$n(t)=(t+7)^2$

10. $h(d) = d^t + 12d - 36$
$a=1$ or 1^2
$b=12$
$c=-36$ or $(?)^2$
Not a perfect sq. trinomial b/c c is negative

11. $P(y) = 9y^2 + 24y + 16$
$a=9$ or 3^2
$b=24$
$c=16$ or 4^2
$2\cdot3\cdot4=24$
Yes
$P(y)=(3y+4)^2$

12. $r(x) = 16x^2 - 8x + 1$
$a=16$ or 4^2
$b=-8$
$c=1$ or 1^2 or $(-1)^2$
$2\cdot4\cdot1=8$
Yes
$r(x)=(4x-1)^2$