Key

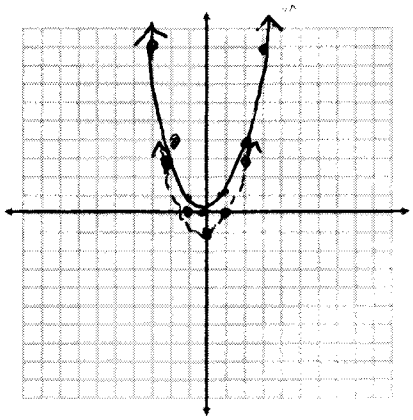
PreCalculus – Parent Graphs & Transformations

(solid) (dotted)

For problems 1- 6, please give the name of the parent function and describe the transformation represented. You may use your graphing calculator to compare & sketch.

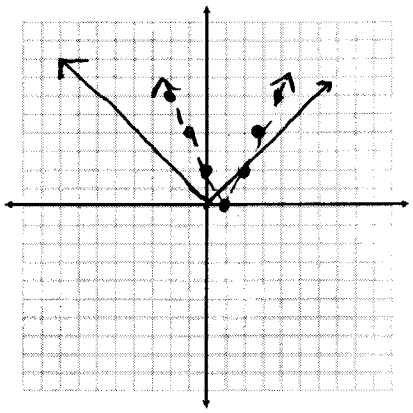
1. $g(x) = x^2 - 1$ Parent: Squaring function $y = x^2$

Transformations: Shift down 1



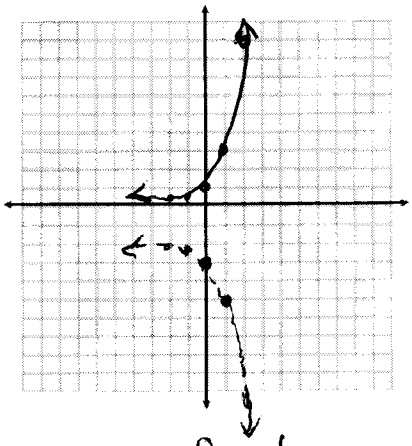
2. $f(x) = 2|x-1|$ Parent: absolute value function $y = |x|$

Transformations: right 1 , vert. stretch * 2



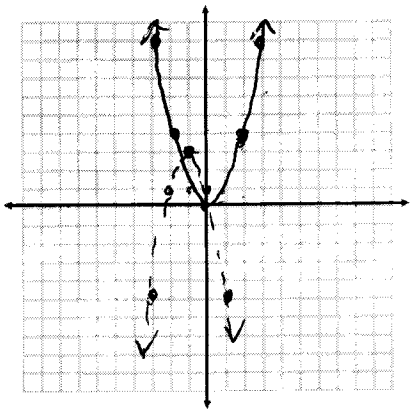
3. $h(x) = -3^x - 2$ Parent: $y = 3^x$

Transformations: reflect over x-axis, shift down 2



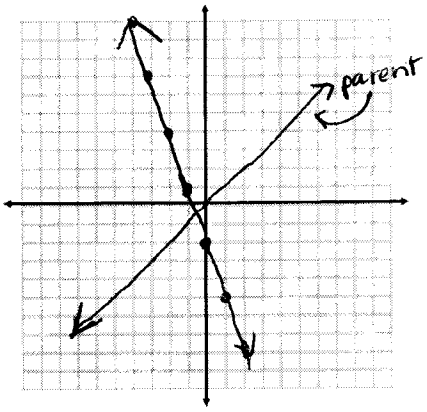
4. $g(x) = -2(x+1)^2 + 3$ Parent: squaring function $y = x^2$

Transformations: left 1, vert. stretch * 2, refl over x-axis, up 3



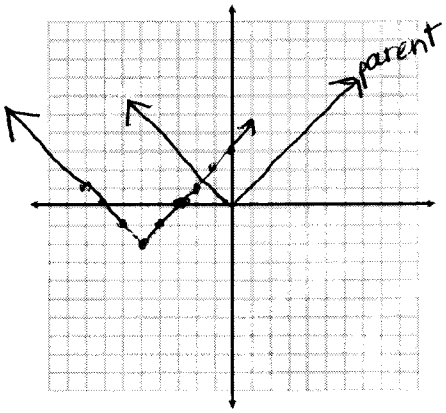
5. $g(x) = -3x - 2$ Parent: identity function $y = x$

Transformations: vert. stretch * 3, reflect over x-axis, down 2



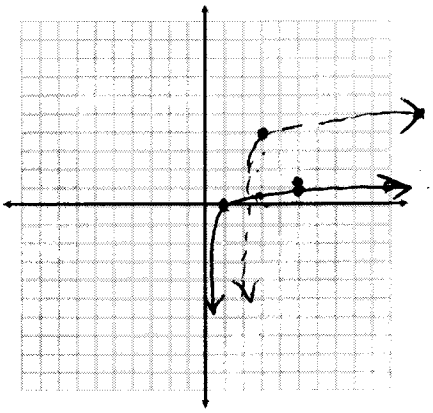
6. $f(x) = |x + 5| - 2$ Parent: abs. value $y = |x|$

Transformations: left 5, down 2



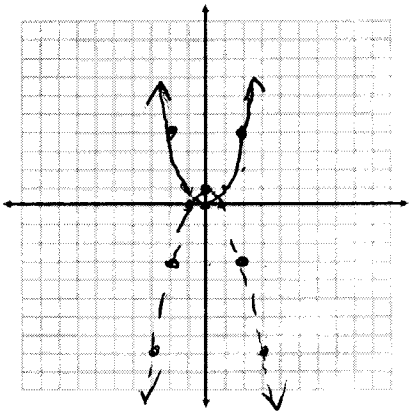
7. $h(x) = \log(x - 2) + 4$ Parent: $y = \log x$

Transformations: right 2, up 4



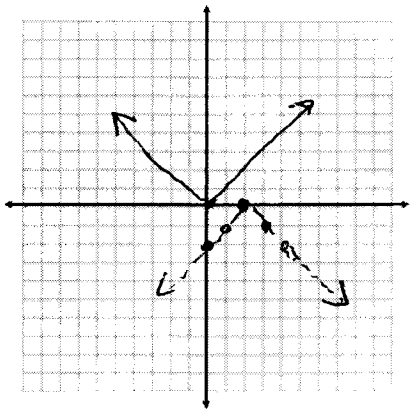
8. $h(x) = -x^2 + 1$ Parent: squaring function $y = x^2$

Transformations: refl. over x-axis, up 1



9. $h(x) = -|x - 2|$ Parent: abs. value $y = |x|$

Transformations: right 2 ; reflect over x-axis



For problems 10 – 15, given the parent function and a description of the transformation, write the equation of the transformed function, f(x).

10. Absolute value—vertical shift up 5, horizontal shift right 3. $y = |x - 3| + 5$

11. Linear—vertical ~~stretch~~/compression by $\frac{2}{5}$ $y = \frac{2}{5}x$

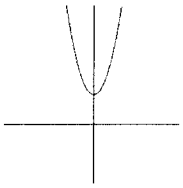
12. Root —flipped over the x axis, vertical shift down 2. $y = -\sqrt{x} - 2$

13. Exponential—vertical stretch by 8 $y = 8e^x$

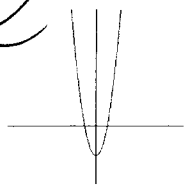
14. Quadratic—vertical stretch by 5, horizontal shift left 8. $y = 5(x-8)^2$

15. Which graph best represents the function $f(x) = 2x^2 - 2$?

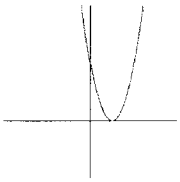
a.



b.



c.



d.