TRANSFORMATION OF FUNCTIONS

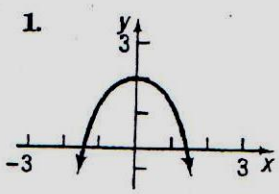
In Problems 1–12, match each graph to one of the following functions:

A. $y = x^2 + 2$ *B.* $y = -x^2 + 2$ *C.* $y = |x| + 2$ *D.* $y = -|x| + 2$

E. $y = (x - 2)^2$ *F.* $y = -(x + 2)^2$ *G.* $y = |x - 2|$ *H.* $y = -|x + 2|$

I. $y = 2x^2$ *J.* $y = -2x^2$ *K.* $y = 2|x|$ *L.* $y = -2|x|$

1.



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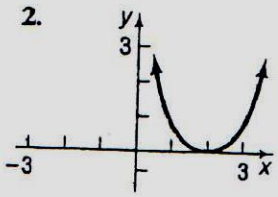

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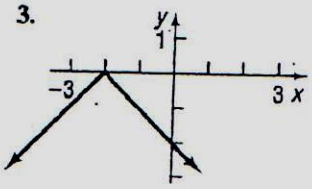

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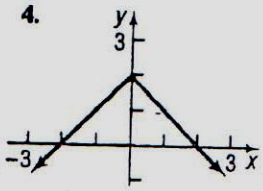

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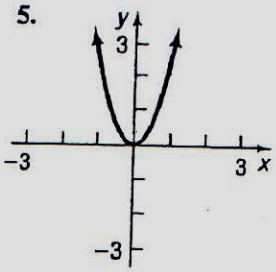

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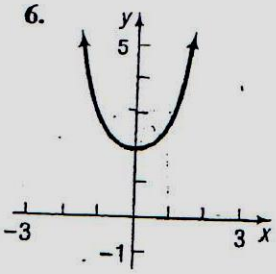

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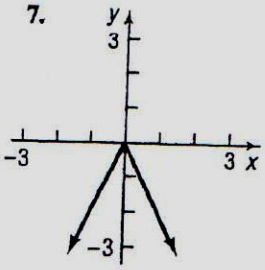

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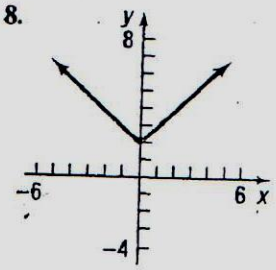

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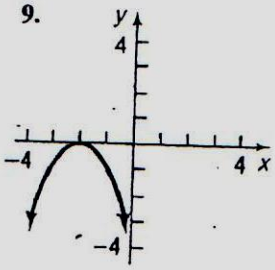

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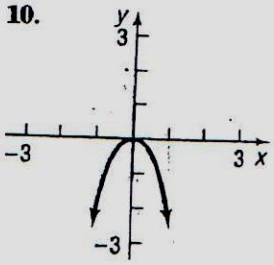

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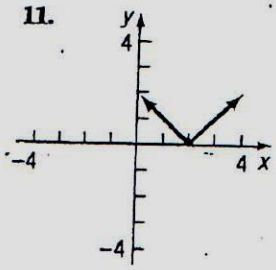

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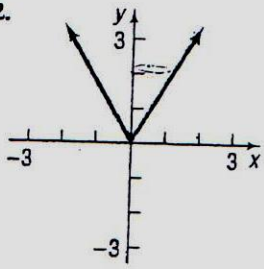


In Problems 13–20, write the function whose graph is the graph of $y = x^3$*, but is*

13. Shifted to the right 4 units

14. Shifted to the left 4 units

15. Shifted up 4 units

16. Shifted down 4 units

17. Reflected about the y-axis

18. Reflected about the x-axis

19. Verfically stretched by a factor of 4

20. Horizontally stretched by a factor of 4

In Problems 21–24, find the function that is finally graphed after the following transformations are applied to the graph of $y = \sqrt{x}$.

21. (1) Shift up 2 units
(2) Reflect about the x-axis
(3) Reflect about the y-axis

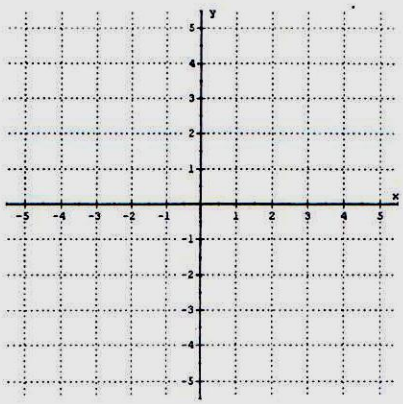
22. (1) Reflect about the x-axis
(2) Shift right 3 units
(3) Shift down 2 units

23. (1) Reflect about the x-axis
(2) Shift up 2 units
(3) Shift left 3 units

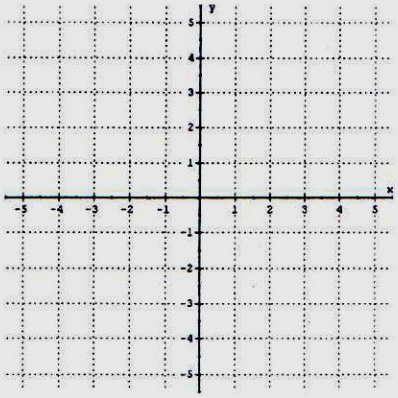
24. (1) Shift up 2 units
(2) Reflect about the y-axis
(3) Shift left 3 units

Transformation Worksheet I

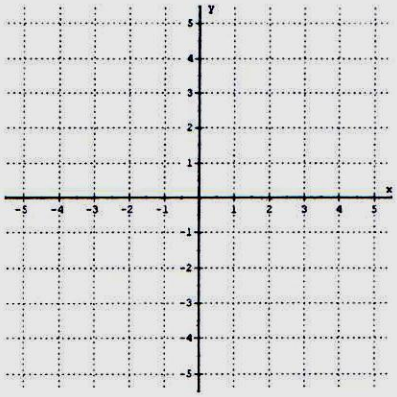
Sketch the graphs of the following transformed parabolas. Use your knowledge of vertices (minimum and maximum), x-intercepts, y-intercept, translations, reflections, etc. to make an accurate sketch.



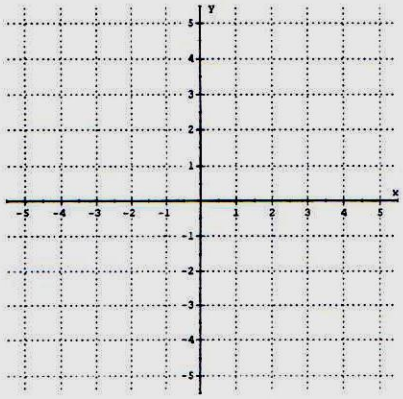
1) $y = x^2$



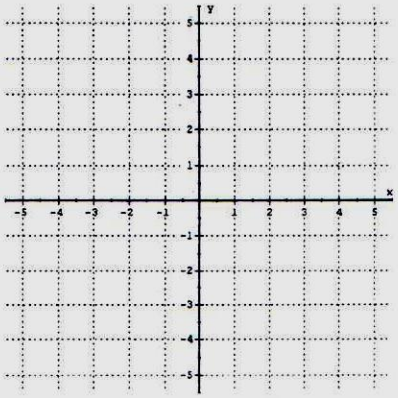
2) $y = x^2 - 4$



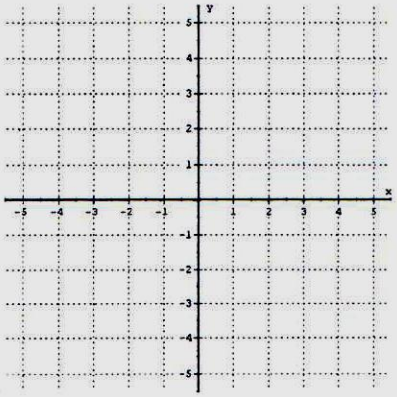
3) $y = (x - 4)^2$



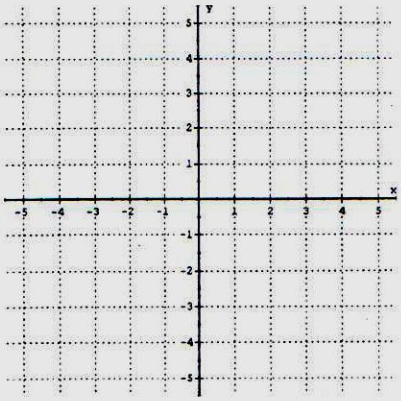
4) $y = (x + 3)^2$



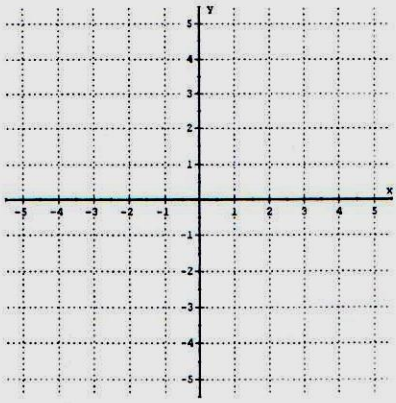
5) $y = (x + 2)^2 - 3$



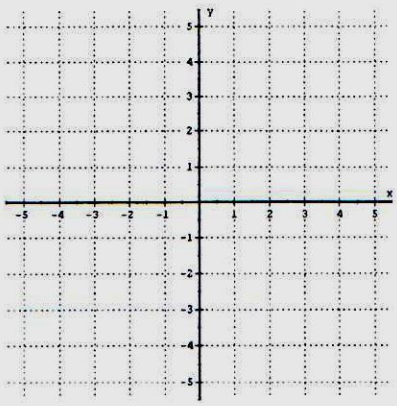
6) $y = 3x^2$



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



8) $y = -3(x + 3)^2 + 4$



9) $y = \frac{1}{2}(x - 2)^2 - 5$