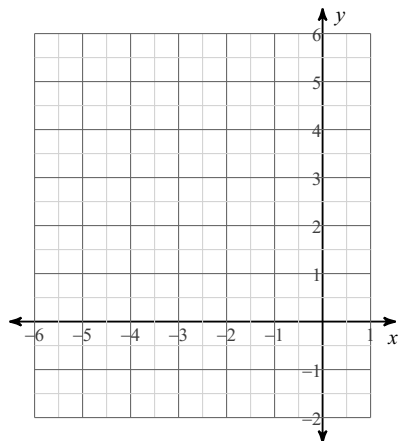


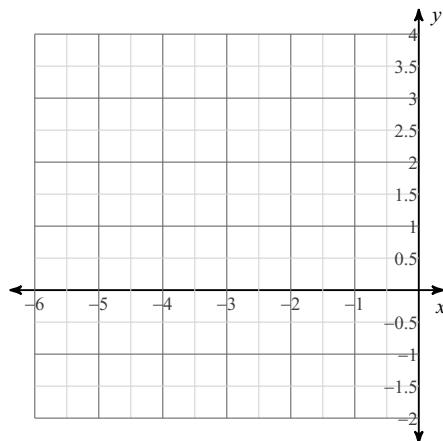
Graphing From Vertex Form

Graph of each quadratic function and list all key features.

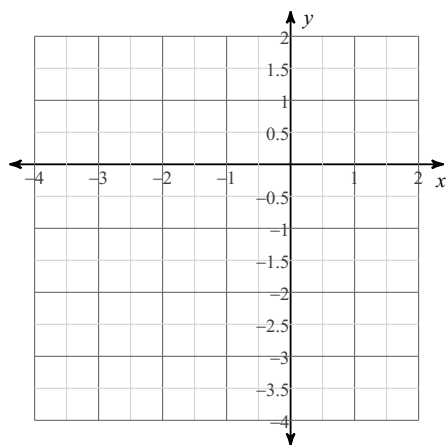
1) $y = -(x + 4)^2 + 4$



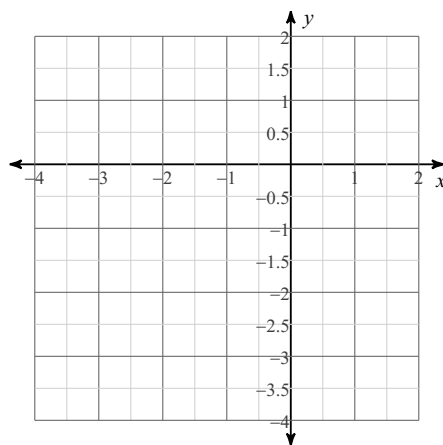
2) $y = (x + 3)^2 - 1$



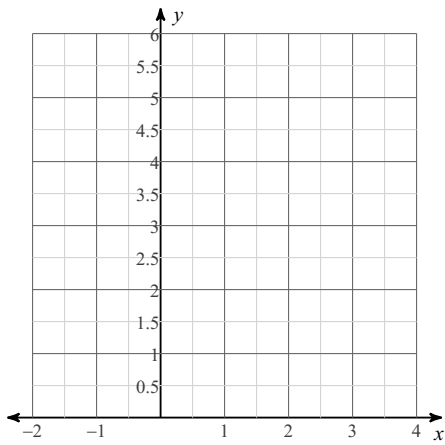
3) $y = (x + 1)^2 - 3$



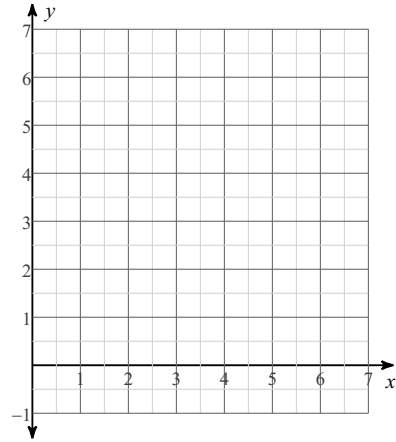
4) $y = (x + 2)^2 - 3$



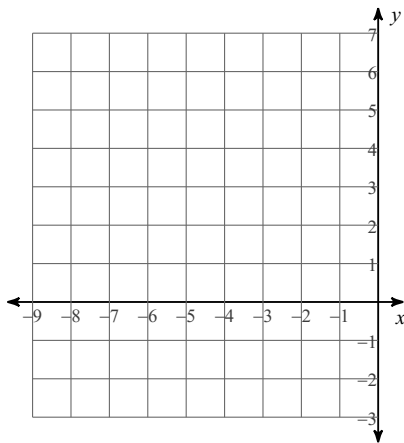
$$5) y = (x - 1)^2 + 1$$



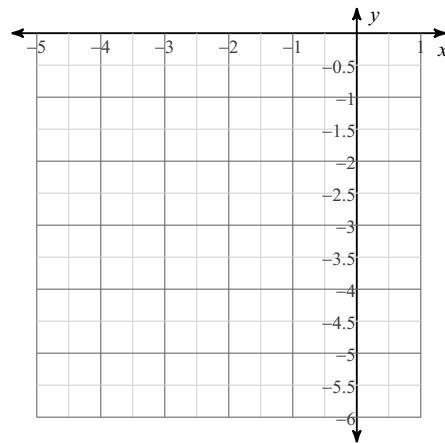
$$6) y = \frac{1}{4}(x - 4)^2 + 4$$



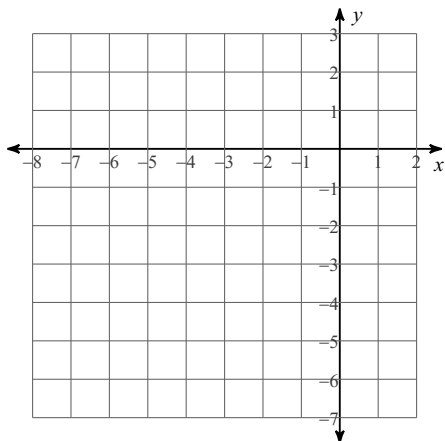
$$7) y = 2(x + 4)^2 - 2$$



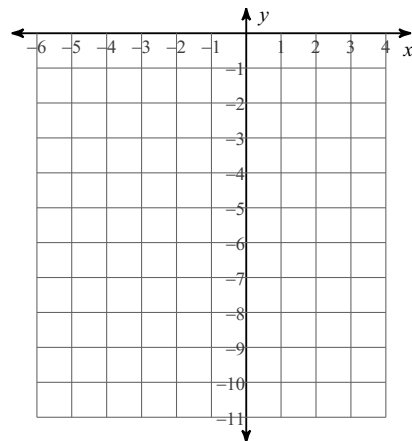
$$8) y = -\frac{1}{3}(x + 3)^2 - 4$$



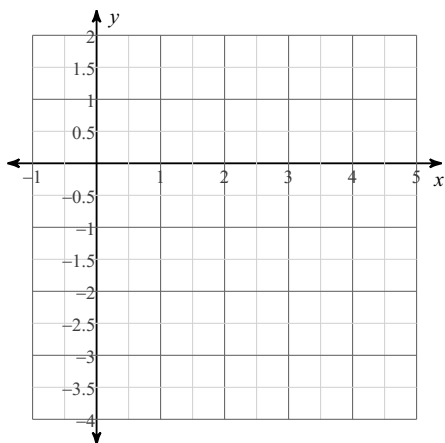
$$9) y = -2(x + 1)^2 + 2$$



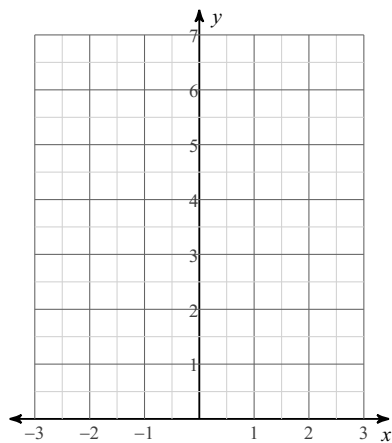
$$10) y = -2(x + 1)^2 - 2$$



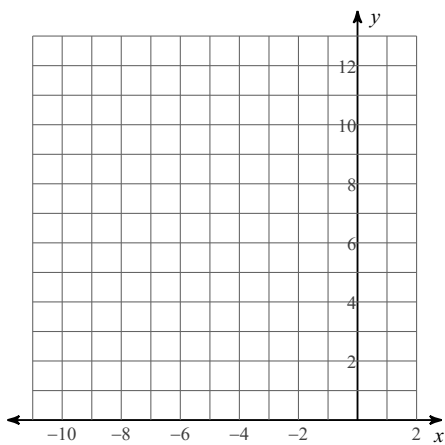
$$11) y = -(x - 2)^2 + 1$$



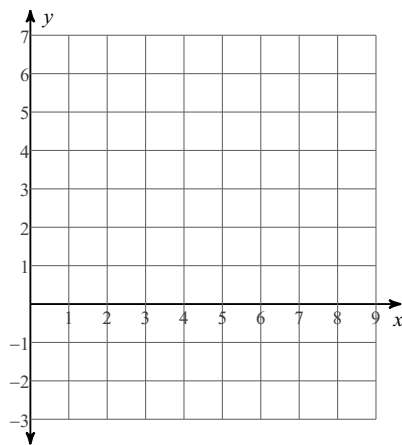
$$12) y = (x - 1)^2 + 2$$



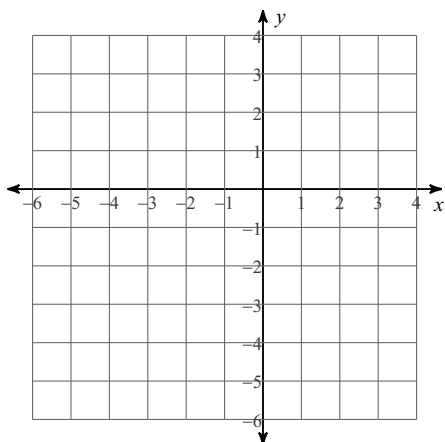
$$13) y = 2(x + 4)^2 + 4$$



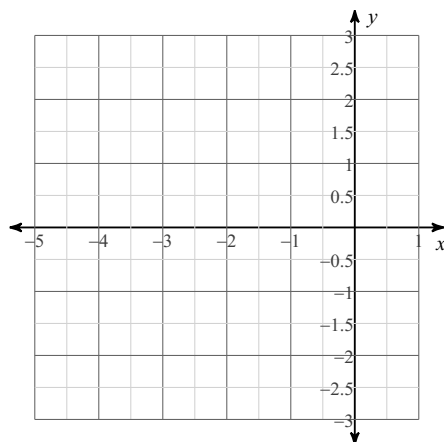
$$14) y = 2(x - 4)^2 - 2$$



$$15) y = -2(x - 2)^2 + 3$$



$$16) y = (x + 1)^2 - 2$$



Factor each completely.

17) $-v^2 - 7v$

18) $-x^2 + 5x + 14$

19) $3n^2 - 6n - 240$

20) $-2a^2 - 14a$

21) $n^2 + n - 56$

22) $2n^2 - 16n$

23) $3v^2 + 3v - 18$

24) $r^2 + 5r + 4$

25) $m^2 - 9$

26) $x^2 - 25$

27) $9r^2 - 4$

28) $4v^2 - 49$