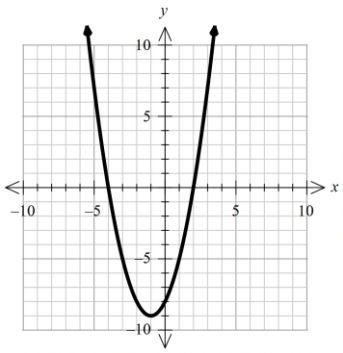
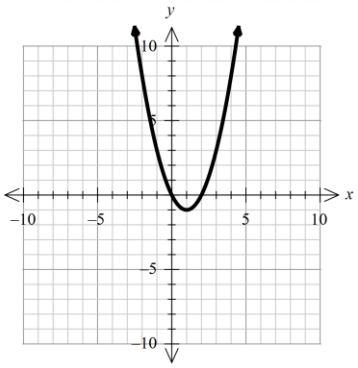
SM2H 4.3 HW answers

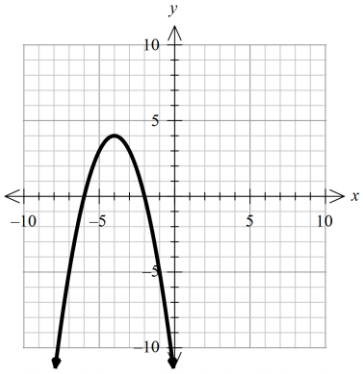
1. $y = -(x)^2 - 6$
2. $y = -3(x+3)^2 + 7$
3. $y = 7(x-10)^2 - 6$
4. $y = -\frac{1}{2}(x+9)^2 + 3$
5. $f(x) = 4(x-3)(x-6)$
6. $f(x) = (x+15)(x+7)$
7. $f(x) = \frac{2}{3}(x+4)(x-7)$
8. $f(x) = \left(x-\sqrt{2}\right)\left(x+\sqrt{2}\right)$
9. $f(x) = 3x^2 - 6x - 2$
10. $f(x) = \frac{1}{4}x^2 + x - 7$
11. $f(x) = \frac{5}{39}x^2 - \frac{40}{39}x - \frac{15}{13}$
12. $f(x) = -2x^2 + 14$
13. $f(x) = x^2 + 16$
14. $f(x) = -x^2 - 36$
15. $y = -2(x-4)^2 - 3$
16. $y = 4(x+3)^2 - 9$
17. $y = \frac{1}{6}(x+5)(x-2)$
18. $y = -\frac{3}{2}(x+3)(x-1)$
    or $y = -\frac{3}{2}(x+1)^2 + 6$
19. $y = -\frac{3}{2}x^2 - 3x + \frac{9}{2}$
20. $y = -x^2 + 8x - 12$
21. $y = (x-2)(x-4)$
    $y = x^2 - 6x + 8$
    $y = (x-3)^2 - 1$
22. $y = (x+5)(x-2)$
    $y = x^2 + 3x - 10$
    $y = (x+\frac{3}{2})^2 - \frac{49}{4}$
23. vertex: $(-1, -9)$
    zeroes: $(2, 0), (-4, 0)$
    y-int: $(0, -8)$
    axis of symmetry: $x = -1$
    domain: $(-\infty, \infty)$
    range: $[-9, \infty)$



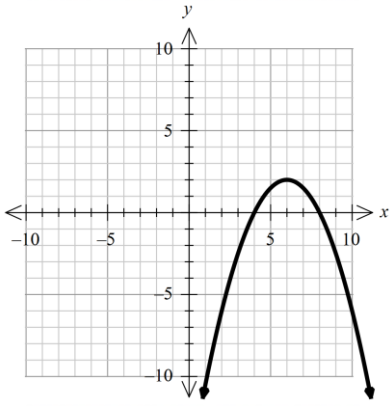
24. vertex: $(1, -1)$
    zeroes: $(2, 0), (0, 0)$
    y-int: $(0, 0)$
    axis of symmetry: $x = 1$
    domain: $(-\infty, \infty)$
    range: $[-1, \infty)$



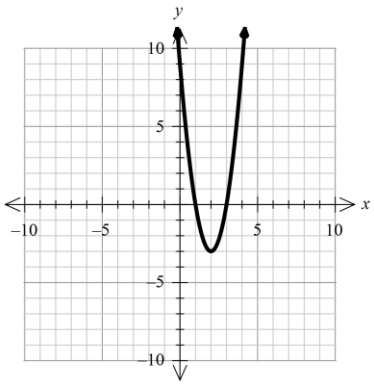
25. vertex: $(-4, 4)$
    zeroes: $(-2, 0), (-6, 0)$
    y-int: $(0, -12)$
    axis of symmetry: $x = -4$
    domain: $(-\infty, \infty)$
    range: $(-\infty, 4]$



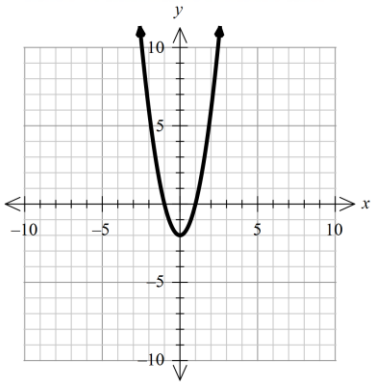
26. vertex: $(6, 2)$
    zeroes: $(8, 0), (4, 0)$
    y-int: $(0, -16)$
    axis of symmetry: $x = 6$
    domain: $(-\infty, \infty)$
    range: $(-\infty, 2]$



27. vertex: $(2, -3)$
    zeroes: $(1, 0), (3, 0)$
    y-int: $(0, 9)$
    axis of symmetry: $x = 2$
    domain: $(-\infty, \infty)$
    range: $[-3, \infty)$



28. vertex: $(0, -2)$
    zeroes: $(1, 0), (-1, 0)$
    y-int: $(0, -2)$
    axis of symmetry: $x = 0$
    domain: $(-\infty, \infty)$
    range: $[-2, \infty)$



29.
    a.
    b. Maximum, a is negative
    c. 2013
    d. 186.822 million metric tons

30.
    e. $A = 40x - 2x^2$
    f. 10 feet by 20 feet
    g. $200\ ft^2$