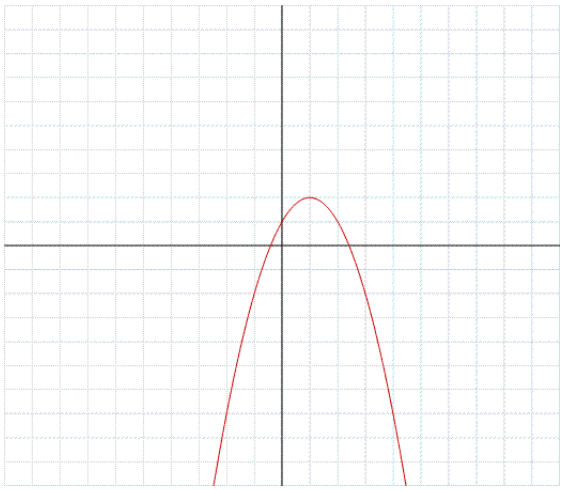
CHAPTER 5 ANSWERS

PROBLEM SET 5-2 AND 5-3

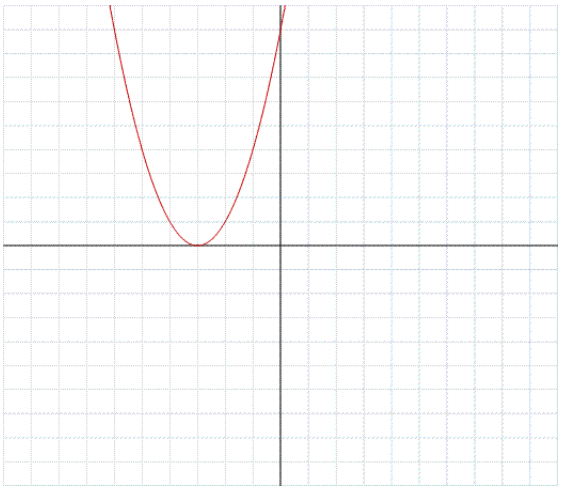
1. Vertex (1, 2)

Axis of Symmetry: $x = 1$



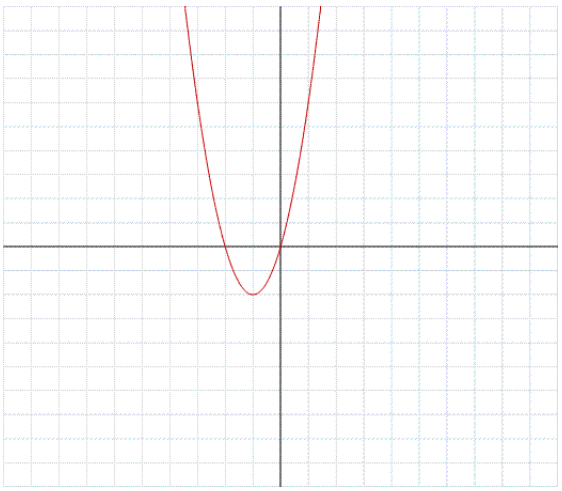
2. Vertex (– 3, 0)

Axis of Symmetry: $x = -3$



3. Vertex (– 1, – 2)

Axis of Symmetry: $x = -1$

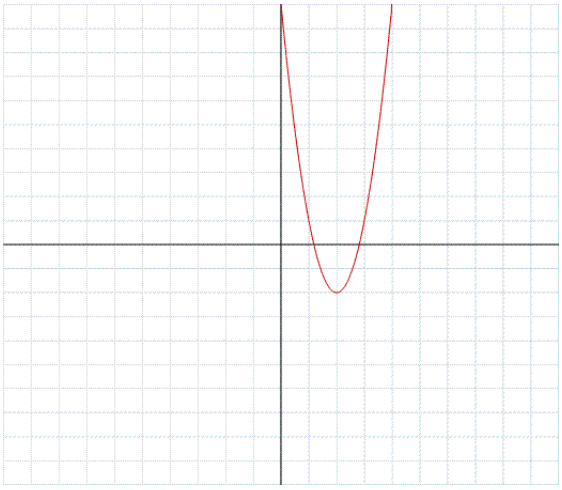


4. Vertex (– 1, 5)

Axis of Symmetry: $x = -1$

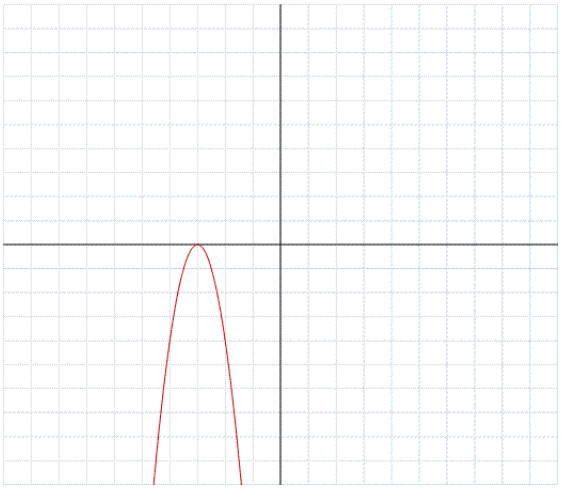
5. Vertex (2, – 2)

Axis of Symmetry: $x = 2$



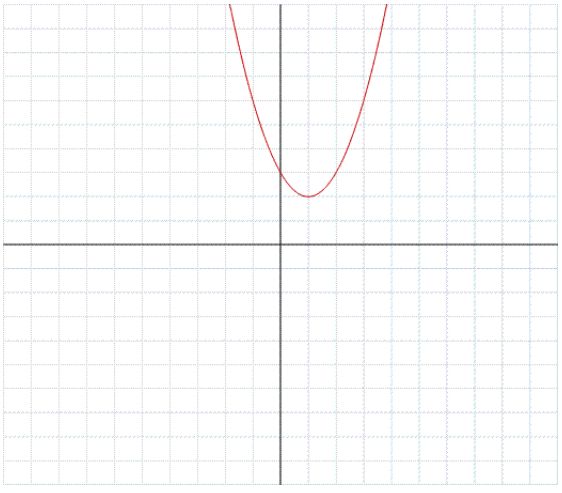
6. Vertex (– 3, 0)

Axis of symmetry: $x = -3$



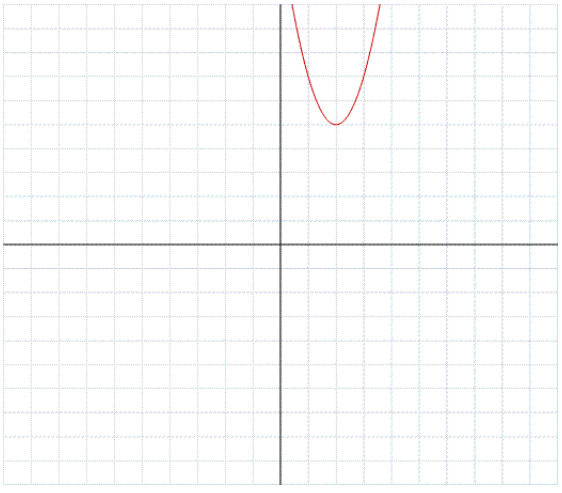
7. Vertex (1, 2)

Axis of Symmetry: $x = 1$



8. Vertex (2, 5)

Axis of Symmetry: $x = 2$

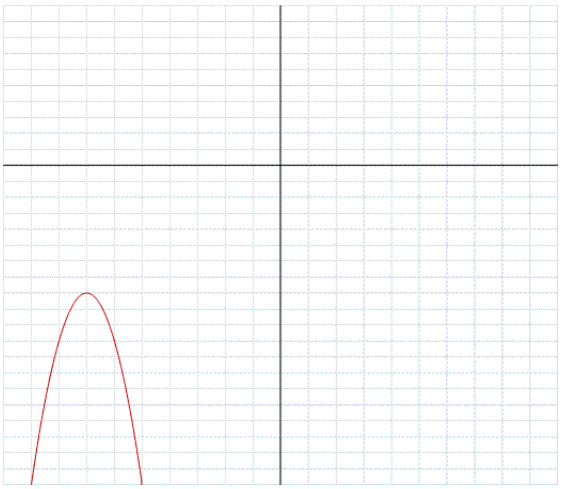


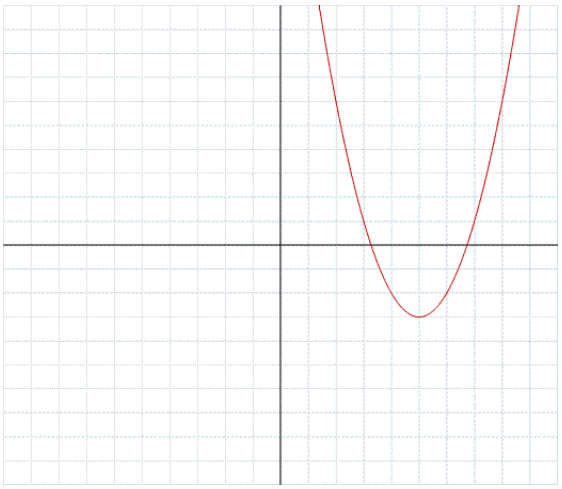
9. Vertex (–7, – 8)

Axis of Symmetry: $x = -7$

10. Vertex (5, – 3)

Axis of Symmetry: $x = 5$



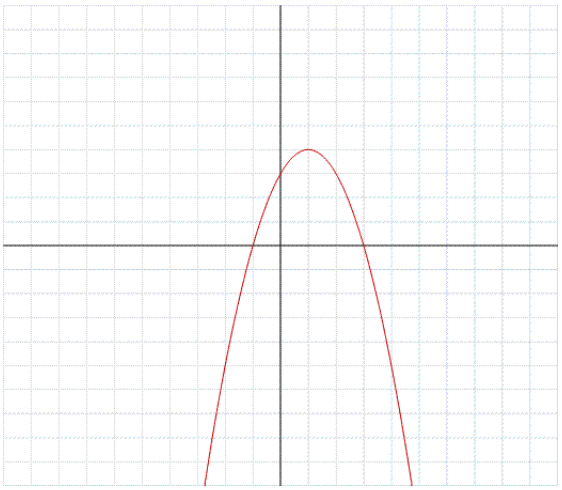


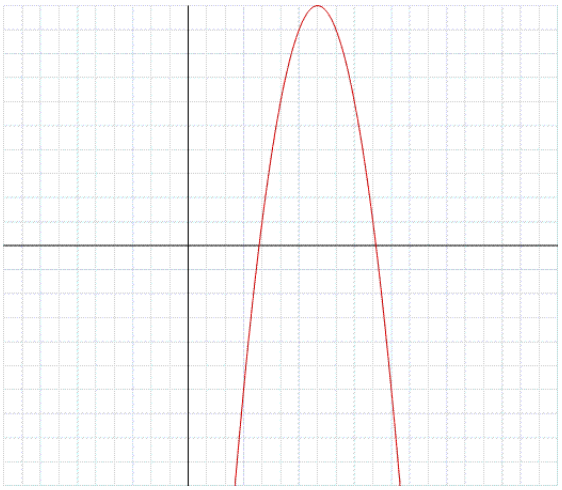
11. Vertex (1, 4)

Axis of Symmetry: $x = 1$

12. Vertex (7, 10)

Axis of Symmetry: $x = 7$





13. $y = -7(x-1)^2 + 2$

14. $y = -\frac{4}{9}(x-3)^2 + 6$

15. $y = 25x^2 + 60x + 27$

16. $y = -9x^2 + 24x - 10$

PROBLEM SET 5-4

1.	$(x + 7)(x – 2)$	**2.**	$(5x – 7)(x + 1)$	**3.**	$(3x + 2)(x + 2)$
4.	$2(x + 7)(3x + 2)$	**5.**	$(5x + 2)(x – 3)$	**6.**	$5x(x – 3)(x + 3)$
7.	Prime	**8.**	Prime	**9.**	$3(x+4)(x+4)$
10.	$7xy(4x – 1)$	**11.**	$2(2x^2 + 1)(3x – 8)$	**12.**	$(x – 7)(5x + 2)$
13.	$4(x – 6)(x + 6)$	**14.**	$(3x – 4)(x + 1)$	**15.**	$(x – 9)(x + 3)$
16.	$3(x – 4)(x + 3)$	**17.**	$2(x + 9)(x – 7)$	**18.**	$(x + 19)(x – 4)$
19.	Prime	**20.**	$(3x – 5)(x + 4)$	**21.**	$(2x + 3)\ (4x – 1)$
22.	$(x – 5)(x + 5)$	**23.**	$(x – 5)(3x + 2)$	**24.**	Prime
25.	$(x + 5)(4x – 3)$	**26.**	$(7x^2 + 8)(x + 3)$	**27.**	$(x + 17)(x – 1)$

PROBLEM SET 5-5

1.	$– 10, 4$	**2.**	$3, 8$	**3.**	$– 3, 3$
4.	$-\frac{1}{2}, 3$	**5.**	$-\frac{3}{2}, -\frac{2}{3}$	**6.**	$– 4, \frac{5}{2}$
7.	$– 4, 0$	**8.**	$1, 7$	**9.**	$– 5, 3$
10.	$– 6, 0$	**11.**	$– 1, 4$	**12.**	$– 4, 3.5$

PROBLEM SET 5-6

1.	$-i$	**2.**	i	**3.**	1
4.	-1	**5.**	$2i$	**6.**	$i\sqrt{7}$
7.	$i\sqrt{15}$	**8.**	$9i$	**9.**	$5i\sqrt{2}$
10.	$4i$	**11.**	$4i\sqrt{2}$	**12.**	$9i$
13.	$-10i$	**14.**	$6i\sqrt{2}$		
15.	$6+3i$	**16.**	$1+3i$	**17.**	$7+14i$
18.	$-2-3i$	**19.**	$10+6i$	**20.**	$-7-10i$
21.	10	**22.**	$26-7i$	**23.**	$9+58i$
24.	$9-23i$	**25.**	-36	**26.**	$65+72i$
27.	$288i$	**28.**	$-1+5i$	**29.**	$10-4i$
30.	$8-2i$	**31.**	$11-5i$	**32.**	$6+10i$
33.	$7-i$	**34.**	$10+11i$	**35.**	$-27+8i$

PROBLEM SET 5-7

1.	81	**2.**	$\frac{1}{4}$	**3.**	144
4.	100	**5.**	$\frac{9}{4}$	**6.**	4
7.	$-4, 7$	**8.**	$1\pm i$	**9.**	$-1, 9$
10.	$\frac{3}{2}\pm\frac{i\sqrt{31}}{2}$	**11.**	$2\pm\frac{\sqrt{15}}{3}$	**12.**	$-\frac{5}{4}\pm\frac{i\sqrt{3}}{4}$
13.	$-12\pm3\sqrt{17}$	**14.**	$\frac{1}{4}\pm\frac{\sqrt{57}}{12}$	**15.**	$-\frac{2}{3},\frac{1}{3}$
16.	$y=(x+2)^2-11$	**17.**	$y=2(x-2)^2-7$	**18.**	$y=-4\left(x+\frac{5}{8}\right)^2+\frac{73}{16}$
19.	$y=\frac{1}{2}(x-5)^2-\frac{1}{2}$				

PROBLEM SET 5-8

1. – 223; two imaginary **2.** 169; two real **3.** -116; two imaginary

4. 1; two real **5.** 0; one real **6.** 0; one real

7. $-\frac{5}{3}, \frac{1}{3}$ **8.** $-2 \pm i\sqrt{2}$ **9.** $-\frac{2}{3} \pm \frac{i\sqrt{26}}{3}$

10. $\frac{5}{2} \pm \frac{i\sqrt{3}}{2}$ **11.** $-\frac{1}{15} \pm \frac{i\sqrt{14}}{15}$ **12.** $-\frac{1}{2}, 3$

13. $\frac{5}{3} \pm \frac{\sqrt{10}}{3}$ **14.** $-\frac{2}{3} \pm \frac{\sqrt{13}}{3}$ **15.** $-\frac{1}{6}, 1$

16. $-\frac{3}{2}, \frac{1}{2}$ **17.** $1 \pm i$ **18.** – 7, 7

19. $3 \pm i\sqrt{2}$ **20.** $-\frac{1}{2}, \frac{3}{2}$ **21.** – 1, 6