Answer Key (no work shown)

A.

1. 23
2. 15
3. 9
4. 17

B.

1. $15\sqrt{2}$
2. 4/5
3. 30
4. $-15\sqrt{3}$
5. xy^{3}
6. $3xy\sqrt[3]{3xy}$
7. 24
8. $24\sqrt{10}$
9. $12x^{2}y^{4}$
10. $2\sqrt{3} - 24$
11. $4\sqrt{2} - 5\sqrt{6}$
12. $9 - 12\sqrt{x} + 4x$
13. $\dfrac{6 + 4\sqrt{15}}{-15\sqrt{3} - 30\sqrt{5}}$
14. $\dfrac{2\sqrt{3}}{3}$
15. $\dfrac{\sqrt{3} + 3\sqrt{6}}{15}$
16. $-\sqrt{5} + 4\sqrt{7}$
17. $3a\sqrt{2bc}$
18. $14\sqrt{2} - 4\sqrt{3}$
19. $10\sqrt{15}$
20. $\sqrt{7}$
21. $\dfrac{16\sqrt{5}}{5}$

C.

1. 1
2. 1
3. 8
4. 1/3
5. x^{5}
6. $6x^{5}y^{7}$
7. $16x^{4}y^{6}$
8. $3^{9}x^{11}y^{7}$
9. $x^{10}y^{15}$
10. $\dfrac{y^{3}}{3x^{3}}$
11. $\dfrac{4b^{3}}{5^{5}a^{3}x^{4}y^{11}}$
12. $3y^{4}$

D.

1. $-13(x^{2} + 2x - 4)$
2. $2xy(6x^{2} - 4xy + 5y^{2})$
3. $(w - b)(w^{2} + c^{2})$
4. $(4w - 3x)(3y + 8z)$
5. $(x - 12)(x + 12)$
6. $(3ab - 4)(3ab + 4)$
7. $[a - (b - c)][a + (b - c)]$
8. $(x + 3)(x + 4)$
9. (x - 6)(x - 7)
10. (x + 9)(x - 4)
11. (x - 15)(x + 11)
12. 4(x - 11)(x - 11)
13. (x - 3)(5x + 2)
14. 2(y + 8)(y - 3)
15. (2x - 5)(5x - 2)
16. (8x + 3)(3x + 4)

F.

1. 2(x - 3)
2. (4x + 5)
3. (6x - 5)
4. (a + 2)(a + 8)
5. m/n
6. $\dfrac{4(2x - 3)}{3}$
7. $\dfrac{m(k + m)}{k^{2}}$
8. $\dfrac{3}{(k - 3)}$
9. $\dfrac{-1}{2x}$
10. $\dfrac{33w}{40}$
11. $\dfrac{5(3w - 4)}{12}$
12. $\dfrac{4s^{2} - 3rs + 2r^{2}}{r^{3}s^{3}}$

G.

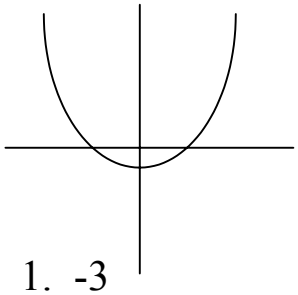
1. 3x+4
2. $x^{3} + x^{2} - 4x - 4$
   r = -1

H.

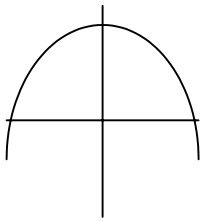
a) 1. No
   2. yes
   3. no
   4. yes

b)
a) 1. 0
   2. 0

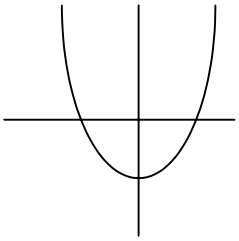
3. 0
4. narrower
5. up
6. (0, 0)
7. x = 0
8. all real nos.
9. $y \geq 0$
10. min
11. y = 0
12.



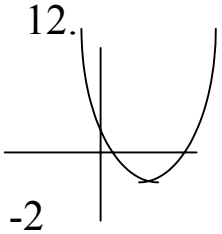
b) 1. -3
2. 0
3. 5
4. narrower
5. down
6. (0, 5)
7. x = 0
8. all real nos.
9. $y \leq 5$
10. max
11. y = 5
12.



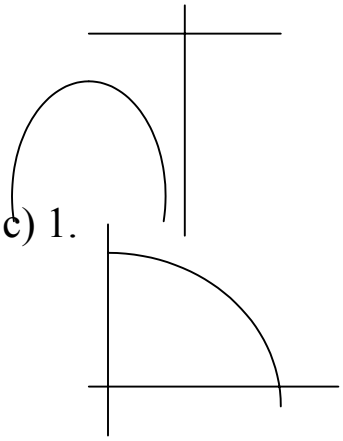
c) 1. 2/3
2. 0
3. -1
4. wider
5 up
6. (0, -1)
7. x = 0
8. all real nos
9. $y \geq -1$
10. min
11. y = -1
12.



d) 1. 1
2. 1
3. 0
4. same
5. up
6. (1, 0)
7. x = 1
8. all real nos
9. $y \geq 0$
10. min
11. y = 0
12.



e) 1. -2
2. -3
3. -4
4. narrower
5. down
6. (-3, -4)
7. x = -3
8. all real nos
9. $y \leq -4$
10. max
11. y = -4
12.



c) 1.

2. 24.73
3. 3000
4. 23.03

I.

a) 1. -3, 2
2. -3, 2
3. 2, -6/5
4. -7/8, 1

b) 1. ± 5
2. $\pm\frac{9}{8}$
3. 25, -5
4. 6, 2

c) 1. 36
2. 7
3. 31

4. $\pm 2\sqrt{11}$

I.

a) no

b) 15, 24.69

c) 16..12

J.

a)

1. BE bisects AD

Given

2. AD bisects BE

Given

3. AC = CD

Def'n bisector

4. BC = CE

Def'n bisector

5. $\angle BCA = \angle DCE$

Vertically opposite angles

6. $\Delta BCA \cong \Delta DEC$

SAS

7. AB = ED

corresponding parts congruent triangles

b)

1. $GH \perp HJ$

Given

2. $KJ \perp HJ$

Given

3. $\angle G = \angle K$

Given

4. $\angle GHJ$ a rt. angle

Def'n perdicular

5. $\angle KJH$ a rt. angle

Def'n perdicular

6. $\angle GHJ = \angle KJH$

rt. angles congruent

7. HJ = HJ

common side

8. $\Delta GHJ \equiv \Delta KJH$

AAS

9. GH = KH

corresponding parts congruent triangles

K.

a)

1. $WZ \parallel XY$

Given

2. $\angle VWZ = \angle VXY$

Corr. angles

3. $\angle VZW = \angle VYZ$

Corr. Angles

4. $\Delta VWZ \approx \Delta VXY$

AA

b) 4

c) 40/3

d) 24, 7

L.

1. 80
2. 84
3. 100
4. 24
5. 19.59
6. 7.6
7. 54/12 or 4.5