Ch 1 Form A

1. Approximate the coordinates of the points.

*y*

6

*A* 5

4

3

2

1

–6 –5 –4 –3 –2 –1–1

–2

–3

–4

*C*

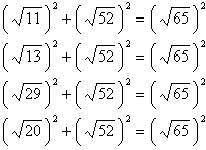
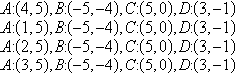
1 2 3 4 5 6 *x*

*D*

*B* 5

–6

|  |  |
| --- | --- |
| a. |  |
| b. |  |
| c. |  |
| d. |  |
| e. | þÿ |

 2. Show that the points form the vertices of the indicated polygon. Right triangle: þÿ

|  |  |
| --- | --- |
| a. |  |
| b. |  |
| c. |  |
| d. |  |
| e. | þÿ |

3. Identify any intercepts and test for symmetry. Then sketch the graph of the equation.

þÿ

|  |  |
| --- | --- |
| a. | *x*-intercept : þÿ  *y*-intercept : þÿ  No symmetry  *y*  5  4  3  2  1  (0, 0) (2, 0)  –5 –4 –3 –2 –1 1 2 3 4 5 *x*  –1  –2  –3  –4  –5 |
| b. | *x*-intercept : þÿ  *y*-intercept : þÿ  No symmetry  *y*  5  4  3  2  1  (0, 0) (2, 0)  –5 –4 –3 –2 –1 1 2 3 4 5 *x*  –1  –2  –3  –4  –5 |

|  |  |
| --- | --- |
| c. | *x*-intercept : þÿ  *y*-intercept : þÿ  No symmetry  *y*  5  4  3  2  1  (0, 0) (2, 0)  –5 –4 –3 –2 –1 1 2 3 4 5 *x*  –1  –2  –3  –4  –5 |
| d. | *x*-intercept : þÿ  *y*-intercept : þÿ  No symmetry  *y*  5  4  3  2  1  (0, 0) (2, 0)  –5 –4 –3 –2 –1 1 2 3 4 5 *x*  –1  –2  –3  –4  –5 |

|  |  |
| --- | --- |
| e. | *x*-intercept : þÿ  *y*-intercept : þÿ  No symmetry  *y*  5  4  3  2  1  (0, 0) (2, 0)  –5 –4 –3 –2 –1 1 2 3 4 5 *x*  –1  –2  –3  –4  –5 |

4. Use a graphing utility to graph the equation. Use a standard setting. Approximate any intercepts.

þÿ

|  |  |
| --- | --- |
| a. | Intercepts: þÿ  *y*  10  8  6  4  2  –10 –8 –6 –4 –2 2 4 6 8 10 *x*  –2  –4  –6  –8  –10 |

|  |  |
| --- | --- |
| b. | Intercepts: þÿ  *y*  10  8  6  4  2  –10 –8 –6 –4 –2 2 4 6 8 10 *x*  –2  –4  –6  –8  –10 |
| c. | Intercepts: þÿ  *y*  10  8  6  4  2  –10 –8 –6 –4 –2 2 4 6 8 10 *x*  –2  –4  –6  –8  –10 |

|  |  |
| --- | --- |
| d. | Intercepts: þÿ  *y*  10  8  6  4  2  –10 –8 –6 –4 –2 2 4 6 8 10 *x*  –2  –4  –6  –8  –10 |
| e. | Intercepts: þÿ  *y*  10  8  6  4  2  –10 –8 –6 –4 –2 2 4 6 8 10 *x*  –2  –4  –6  –8  –10 |

5. Find the *x*- and *y*-intercepts of the graph of the equation þÿ.

|  |  |
| --- | --- |
| a. | *x*-intercept: þÿ *y*-intercept: þÿ |
| b. | *x*-intercept: þÿ  *y*-intercept: þÿ |
| c. | *x*-intercept: þÿ *y*-intercept: þÿ |
| d. | *x*-intercept: þÿ  *y*-intercept: þÿ |
| e. | *x*-intercept: þÿ  *y*-intercept: þÿ |

6. Find the slope and *y*-intercept (if possible) of the equation of the line. Sketch the line.

þÿ

|  |  |  |  |
| --- | --- | --- | --- |
| a. | *y*  10  8  6  4  2  –10 –8 –6 –4 –2 2 4 6 8 10 *x*  –2  –4  –6  –8  –10  *m* is undefined.  *y*-intercept: (0, 4) | d. | *y*  10  8  6  4  2  –10 –8 –6 –4 –2 2 4 6 8 10 *x*  –2  –4  –6  –8  –10  þÿ  *y*-intercept: (0, 4) |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| b. | | | | | | | e. | | | | | | |
|  | *y* |  |  |  |  |  |  | *y* |  |  |  |  |  |
| 10 |  |  |  |  |  |  | 10 |  |  |  |  |  |  |
| 8 |  |  |  |  |  |  | 8 |  |  |  |  |  |  |
| 6 |  |  |  |  |  |  | 6 |  |  |  |  |  |  |
| 4 |  |  |  |  |  |  | 4 |  |  |  |  |  |  |
| 2 |  |  |  |  |  |  | 2 |  |  |  |  |  |  |
| –10 –8 –6 –4 –2 |  | 2 | 4 | 6 | 8 | 10 *x* | –10 –8 –6 –4 –2 |  | 2 | 4 | 6 | 8 | 10 *x* |
| –2 |  |  |  |  |  |  | –2 |  |  |  |  |  |  |
| –4 |  |  |  |  |  |  | –4 |  |  |  |  |  |  |
| –6 |  |  |  |  |  |  | –6 |  |  |  |  |  |  |
| –8 |  |  |  |  |  |  | –8 |  |  |  |  |  |  |
| –10 |  |  |  |  |  |  | –10 |  |  |  |  |  |  |
| –1 |  |  |  |  |  |  | 6 |  |  |  |  |  |  |
| *y*-intercept: (0, 6) |  |  |  |  |  |  | *y*-intercept: (0, 6) |  |  |  |  |  |  |
| c. | | | | | | |  | | | | | | |
|  | *y* |  |  |  |  |  |  | | | | | | |
| 10 |  |  |  |  |  |  |
| 8 |  |  |  |  |  |  |
| 6 |  |  |  |  |  |  |
| 4 |  |  |  |  |  |  |
| 2 |  |  |  |  |  |  |
| –10 –8 –6 –4 –2 |  | 2 | 4 | 6 | 8 | 10 *x* |
| –2 |  |  |  |  |  |  |
| –4 |  |  |  |  |  |  |
| –6 |  |  |  |  |  |  |
| –8 |  |  |  |  |  |  |
| –10 |  |  |  |  |  |  |
| –6 |  |  |  |  |  |  |
| *y*-intercept: (0, 6) |  |  |  |  |  |  |

7. Use the *intercept form* to find the equation of the line with the given intercepts. The intercept form of the equation of a line with intercepts þÿ and þÿ is

þÿ

Point on line: þÿ

þÿ*x*-intercept: þÿ *y*-intercept: þÿ

|  |  |
| --- | --- |
| a. |  |
| b. |  |
| c. |  |
| d. |  |
| e. |  |

8. Evaluate the function þÿ at þÿ.



|  |  |
| --- | --- |
| a. | þÿ |
| b. | þÿ |
| c. | þÿ |
| d. | þÿ |
| e. | þÿ |

9. Find all real values of *x* such that þÿ.

þÿ

|  |  |
| --- | --- |
| a. | 7 |
| b. | 5 |
| c. | 9 |
| d. | 6 |
| e. | 8 |

þÿ 10. Find the difference quotient and simplify your answer. þÿ,

|  |  |
| --- | --- |
| a. | þÿ |
| b. | þÿ |
| c. | þÿ |
| d. | þÿ |
| e. | þÿ |

 11. Find the zeros of the function algebraically.

þÿ

|  |  |
| --- | --- |
| a. |  |
| b. |  |
| c. |  |
| d. |  |
| e. |  |

12. Find the coordinates of a second point on the graph of a function *f* if the given point is on the graph and the function is even and odd.



þÿ

|  |  |
| --- | --- |
| a. | þÿ |
| b. | þÿ |
| c. | þÿ |
| d. | þÿ |
| e. | þÿ |

13. Write the linear function such that it has the indicated function values.



þÿ

|  |  |
| --- | --- |
| a. | þÿ |
| b. |  |
| c. |  |
| d. |  |
| e. | þÿ |

14. Select the correct graph of the given function.

þÿ

1. d.

*y*

5

4

3

2

1

–5 –4 –3 –2 –1

–1

1 2

3 4 5 *x*

–2

–3

–4

–5

*y*

5

4

3

2

1

–5 –4 –3 –2 –1

–1

1 2

3 4 5 *x*

–2

–3

–4

–5

*y*

5

4

3

2

1

–5 –4 –3 –2 –1

–1

1 2

3 4 5 *x*

–2

–3

–4

–5

*y*

5

4

3

2

1

–5 –4 –3 –2 –1

–1

1 2 3 4 5

*x*

–2

–3

–4

–5

*y*

5

4

3

2

1

–5 –4 –3 –2 –1

–1

1 2 3 4 5

*x*

–2

–3

–4

–5

1. e.

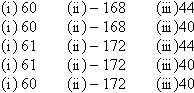
c.

þÿ 15. Select the graph of the function .

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| a. | | | | | | | | | | | | d. | | | | | | | | | | | |
|  |  |  |  |  | *y* |  |  |  |  |  |  |  |  |  |  |  | *y* |  |  |  |  |  |  |
|  |  |  |  | 5 |  |  |  |  |  |  |  |  |  |  |  | 5 |  |  |  |  |  |  |  |
|  |  |  |  | 4 |  |  |  |  |  |  |  |  |  |  |  | 4 |  |  |  |  |  |  |  |
|  |  |  |  | 3 |  |  |  |  |  |  |  |  |  |  |  | 3 |  |  |  |  |  |  |  |
|  |  |  |  | 2 |  |  |  |  |  |  |  |  |  |  |  | 2 |  |  |  |  |  |  |  |
|  |  |  |  | 1 |  |  |  |  |  |  |  |  |  |  |  | 1 |  |  |  |  |  |  |  |
| –5 | –4 | –3 | –2 | –1 |  | 1 | 2 | 3 | 4 | 5 | *x* | –5 | –4 | –3 | –2 | –1 |  | 1 | 2 | 3 | 4 | 5 | *x* |
|  |  |  |  | –1 |  |  |  |  |  |  |  |  |  |  |  | –1 |  |  |  |  |  |  |  |
|  |  |  |  | –2 |  |  |  |  |  |  |  |  |  |  |  | –2 |  |  |  |  |  |  |  |
|  |  |  |  | –3 |  |  |  |  |  |  |  |  |  |  |  | –3 |  |  |  |  |  |  |  |
|  |  |  |  | –4 |  |  |  |  |  |  |  |  |  |  |  | –4 |  |  |  |  |  |  |  |
|  |  |  |  | –5 |  |  |  |  |  |  |  |  |  |  |  | –5 |  |  |  |  |  |  |  |
| b. | | | | | | | | | | | | e. | | | | | | | | | | | |
|  |  |  |  |  | *y* |  |  |  |  |  |  |  |  |  |  |  | *y* |  |  |  |  |  |  |
|  |  |  |  | 5 |  |  |  |  |  |  |  |  |  |  |  | 5 |  |  |  |  |  |  |  |
|  |  |  |  | 4 |  |  |  |  |  |  |  |  |  |  |  | 4 |  |  |  |  |  |  |  |
|  |  |  |  | 3 |  |  |  |  |  |  |  |  |  |  |  | 3 |  |  |  |  |  |  |  |
|  |  |  |  | 2 |  |  |  |  |  |  |  |  |  |  |  | 2 |  |  |  |  |  |  |  |
|  |  |  |  | 1 |  |  |  |  |  |  |  |  |  |  |  | 1 |  |  |  |  |  |  |  |
| –5 | –4 | –3 | –2 | –1 |  | 1 | 2 | 3 | 4 | 5 | *x* | –5 | –4 | –3 | –2 | –1 |  | 1 | 2 | 3 | 4 | 5 | *x* |
|  |  |  |  | –1 |  |  |  |  |  |  |  |  |  |  |  | –1 |  |  |  |  |  |  |  |
|  |  |  |  | –2 |  |  |  |  |  |  |  |  |  |  |  | –2 |  |  |  |  |  |  |  |
|  |  |  |  | –3 |  |  |  |  |  |  |  |  |  |  |  | –3 |  |  |  |  |  |  |  |
|  |  |  |  | –4 |  |  |  |  |  |  |  |  |  |  |  | –4 |  |  |  |  |  |  |  |
|  |  |  |  | –5 |  |  |  |  |  |  |  |  |  |  |  | –5 |  |  |  |  |  |  |  |
| c. | | | | | | | | | | | |  | | | | | | | | | | | |
|  |  |  |  |  | *y* |  |  |  |  |  |  |  | | | | | | | | | | | |
|  |  |  |  | 5 |  |  |  |  |  |  |  |
|  |  |  |  | 4 |  |  |  |  |  |  |  |
|  |  |  |  | 3 |  |  |  |  |  |  |  |
|  |  |  |  | 2 |  |  |  |  |  |  |  |
|  |  |  |  | 1 |  |  |  |  |  |  |  |
| –5 | –4 | –3 | –2 | –1 |  | 1 | 2 | 3 | 4 | 5 | *x* |
|  |  |  |  | –1 |  |  |  |  |  |  |  |
|  |  |  |  | –2 |  |  |  |  |  |  |  |
|  |  |  |  | –3 |  |  |  |  |  |  |  |
|  |  |  |  | –4 |  |  |  |  |  |  |  |
|  |  |  |  | –5 |  |  |  |  |  |  |  |

16. Evaluate the function for the indicated values.

*f*(*x*) = 4 þÿ*x* + 8þÿ + 8

þÿþÿ(i) (ii) (iii) þÿ

|  |  |
| --- | --- |
| a. |  |
| b. |  |
| c. |  |
| d. |  |
| e. |  |

17. Use the graph of þÿ to write an equation for the function whose graph is shown.

*y*

4

–4

4

8

12

*x*

–4

–8

–12

|  |  |
| --- | --- |
| a. |  |
| b. |  |
| c. |  |
| d. | þÿ |
| e. | þÿ |

18. þÿ is related to the parent function. Identify the parent function þÿ.



þÿ

|  |  |
| --- | --- |
| a. | þÿ |
| b. | þÿ |
| c. | þÿ |
| d. | þÿ |
| e. | None of the above |

19. Find þÿ. What is the domain of þÿ? þÿ, þÿ

|  |  |
| --- | --- |
| a. | þÿ; all real numbers *x* . |
| b. | þÿ; all real numbers *x* except 0 |
| c. | ; all real numbers *x* except 5  7 |
| d. | þÿ; all real numbers *x* except |
| e. | ; all real numbers *x* except 7  5 |

20. Find *g*o*f* and the domain of composite function. þÿ, þÿ

|  |  |
| --- | --- |
| a. | þÿ  Domain of *g*o*f*: all real numbers *x* |
| b. | þÿ  Domain of *g*o*f*: all real numbers *x* |
| c. | þÿ  Domain of *g*o*f*: all real numbers *x* |
| d. | þÿ  Domain of *g*o*f*: all real numbers *x* |
| e. | þÿ  Domain of *g*o*f*: all real numbers *x* |

21. The suggested retail price of a new hybrid car is *p* dollars. The dealership advertises a factory rebate of $2000 and a 30% discount.

Write a function *R* in terms of *p* giving the cost of the hybrid car after receiving the rebate from the factory.



|  |  |
| --- | --- |
| a. |  |
| b. |  |
| c. |  |
| d. |  |
| e. |  |

22. Find the inverse function of *f* informally.

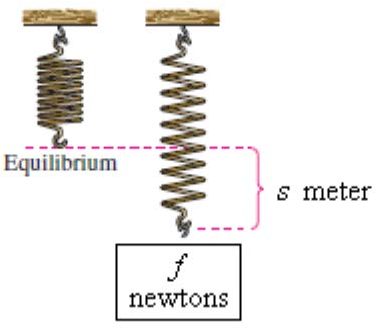
þÿ

|  |  |
| --- | --- |
| a. | þÿ |
| b. | þÿ |
| c. | þÿ |
| d. | þÿ |
| e. | þÿ |

23. Find the inverse function of þÿ .

|  |  |
| --- | --- |
| a. | þÿ |
| b. | þÿ |
| c. | þÿ |
| d. | þÿ |
| e. | þÿ |

þÿ 24. A force of þÿ newtons stretches a spring meter (see figure).



How far will a force of 60 newtons stretch the spring? What force is required to stretch the spring 0.2 meter?

|  |  |
| --- | --- |
| a. | þÿ |
| b. | þÿ |
| c. | þÿ |
| d. | þÿ |
| e. | þÿ |

þÿ 25. After determining whether the variation model below is of the form þÿ or

, find the value of *k*.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| *x* | 4 | 8 | 12 | 16 | 20 |
| *y* | þÿ | þÿ | þÿ | þÿ | þÿ |

|  |  |
| --- | --- |
| a. |  |
| b. |  |
| c. |  |
| d. |  |
| e. |  |

## Ch 1 Form A Answer Section

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 1. ANS: | E | PTS: | 1 | REF: | 1.1.5 |
| 2. ANS: | B | PTS: | 1 | REF: | 1.1.43 |
| 3. ANS: | A | PTS: | 1 | REF: | 1.2.47 |
| 4. ANS: | D | PTS: | 1 | REF: | 1.2.67 |
| 5. ANS: | E | PTS: | 1 | REF: | 1.2.32 |
| 6. ANS: | D | PTS: | 1 | REF: | 1.3.19 |
| 7. ANS: | D | PTS: | 1 | REF: | 1.3.102 |
| 8. ANS: | D | PTS: | 1 | REF: | 1.4.38c |
| 9. ANS: | A | PTS: | 1 | REF: | 1.4.59 |
| 10. ANS: | D | PTS: | 1 | REF: | 1.4.104 |
| 11. ANS: | D | PTS: | 1 | REF: | 1.5.32 |
| 12. ANS: | E | PTS: | 1 | REF: | 1.5.130 |
| 13. ANS: | A | PTS: | 1 | REF: | 1.6.14a |
| 14. ANS: | A | PTS: | 1 | REF: | 1.6.36 |
| 15. ANS: | B | PTS: | 1 | REF: | 1.6.52 |
| 16. ANS: | E | PTS: | 1 | REF: | 1.6.46 |
| 17. ANS: | E | PTS: | 1 | REF: | 1.7.17d |
| 18. ANS: | D | PTS: | 1 | REF: | 1.7.35a |
| 19. ANS: | C | PTS: | 1 | REF: | 1.8.11d |
| 20. ANS: | C | PTS: | 1 | REF: | 1.8.43b |
| 21. ANS: | B | PTS: | 1 | REF: | 1.8.76a |
| 22. ANS: | E | PTS: | 1 | REF: | 1.9.14 |
| 23. ANS: | D | PTS: | 1 | REF: | 1.9..51a |
| 24. ANS: | C | PTS: | 1 | REF: | 1.10.45 |
| 25. ANS: | E | PTS: | 1 | REF: | 1.10.33 |