MTH111 College Algebra Unit 2 Assessment Test Bank

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 1 | Would need to see the students work | 2 | Could be turned into an online matching problem | 3 | Could be turned into an online short answer problem |
| 4 | Would need to see the students work | 5 | Would need to see the students work...part of it could be a short answer | 6 | Could probably be an online short answer problem... |
| 7 | Could be turned into an online matching problem | 8 | Could be turned into an online short answer problem | 9 | Would need to see the students work |
| 10 | Would need to see the students work | 11 | Could be turned into an online matching problem |  |  |

1. Given the following table

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 2 | 4 | 6 | 8 | 10 |
|  | -1 | -2 | -3 | -4 | -5 |

Find a formula for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Given the following table

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 2 | 3 | 4 | 5 | 6 |
|  | -3 | -1 | 1 | 3 | 5 |

Find a formula for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Find the equation of the linear function passing through the points (-6, 7) and (3, 4).

1. Find the equation of the linear function passing through the points (-4, 4) and (8, 1).

|  |  |
| --- | --- |
| 2. Match each function with its corresponding graph.  a) y II  b) I  c) y III |  |
| d) III  e) I  f) IV |  |

|  |  |
| --- | --- |
| 2. Match each function with its corresponding graph.  a) I  b) III  c) y II |  |
| d) I  e) III  f) IV |  |

|  |  |  |
| --- | --- | --- |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

|  |  |
| --- | --- |
| 2. Match each function with its corresponding graph  a) y I  b) II  c) IV |  |
| d) I  e) III  f) II |  |

3. The model describes the number of nurses (in thousands) in the U.S. years after 1985. Explain what the rate of change and initial value of the function mean, include units in your explanation.

Rate of change:

Initial Value:

3. The model describes the number of physical therapists (in thousands) in the U.S. years after 1970. Explain what the rate of change and initial value of the function mean, include units in your explanation.

Rate of change:

Initial Value:

3. The model describes the number of college students enrolled (in thousands) in the U.S. years after 1970. Explain what the rate of change and initial value of the function mean, include units in your explanation.

Rate of change:

Initial Value:

4. Darrel was very excited to receive the 5922 piece Taj Mahal Lego set for his birthday. On the first day he put together 230 pieces, but after that he added 65 pieces a day.

a) Write a linear function for the number of pieces completed, using t = the number of days since his birthday.

b) How many days will it take him to complete half of the kit? (Answer with a sentence and include units.)

4. Calvin had a very successful evening of trick-or-treating, he came home with 208 pieces of candy. That night he ate 32 pieces of candy, but in the following days showed some restraint and only ate 12 pieces a day after that.

a) Write a linear function for the number of pieces he has eaten, using t = the number of days since Halloween.

b) How many days will it take him to eat half his candy? (Answer with a sentence and include units.)

4. Ethan has put off doing his homework, and will have a long weekend getting caught up. He has a total of 780 pages to read, and he knows from past experience that he can read about 35 pages an hour.

a) Write a linear function for the number of pages he has remaining to read as a function of the number of hours he has read.

b) How long will it take him to complete his reading ? (Answer with a sentence and include units.)

5.

A linear function passes through the point with a slope of .

a) Graph and label the function .

b) Write the equation for

c) Write the equation of a line that is perpendicular to and passes through the point (-1, 2).

d) Graph and label

e) What are the coordinates for the intersection of the lines and ?

5.

A linear function passes through the point with a slope of .

a) Graph and label the function.

b) Write the equation for

c) Write the equation of a line that is perpendicular to and passes through the point .

d) Graph and label

e) What are the coordinates for the intersection of the lines and ?

5.

A linear function passes through the point with a slope of .

a) Graph and label the function.

b) Write the equation for

c) Write the equation of a line that is perpendicular to and passes through the point .

d) Graph and label

e) What are the coordinates for the intersection of the lines and?

6. Anne’s Green Garden raises and sells potted begonias. If the company sells 50 begonias in a week, its weekly profit is, unfortunately, negative $40. But if they can sell 150 begonias in a week, its weekly profit will be $310.

a) Find the slope of the profit function, and explain what it means using appropriate units.

b) Find the vertical intercept of the profit function and explain what it means.

c) Find and explain what it means.

6. Charlie’s Chocolates makes and sells hand crafted chocolates. If the company sells 50 boxes in a week, its weekly profit is, unfortunately, negative $40. But if they can sell 150 boxes in a week, its weekly profit will be $310.

a) Find the slope of the profit function, and explain what it means using appropriate units.

b) Find the vertical intercept of the profit function and explain what it means, use appropriate units.

c) Find and explain what it means.

6. Gwen has a cat walking business. Her customers pay by the week and she has advertising and insurance expenses which is all taken into account for her profit. If she has 6 customers in a week, her weekly profit is, unfortunately, negative $40. But if she has 20 customers in a week, her weekly profit will be $170.

a) Find the slope of the profit function, and explain what it means using appropriate units.

b) Find the vertical intercept of the profit function and explain what it means, use appropriate units.

c) Find and explain what it means.

7. Match the rate of change with the function description that best represents it over its domain.

|  |  |  |  |
| --- | --- | --- | --- |
|  | A \_\_\_\_The rate of change is positive  D \_\_\_\_The rate of change is negative  C \_\_\_\_The rate of change is undefined  B \_\_\_\_The rate of change is 0 |  | A. An increasing linear function  B. A horizontal line  C. A vertical line  D. A decreasing function |

7. Match the rate of change with the function description that best represents it over its domain.

|  |  |  |  |
| --- | --- | --- | --- |
|  | D \_\_\_\_The rate of change is negative  C \_\_\_\_The rate of change is undefined  A \_\_\_\_The rate of change is positive  B \_\_\_\_The rate of change is 0 |  | A. An increasing linear function  B. A horizontal line  C. A vertical line  D. A decreasing function |

7. Match the rate of change with the function description that best represents it over its domain.

|  |  |  |  |
| --- | --- | --- | --- |
|  | \_\_\_\_The rate of change is positive A  \_\_\_\_The rate of change is negative C  \_\_\_\_The rate of change is undefined B  \_\_\_\_The rate of change is 0 D |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |

8. The graph of the transformed absolute value function is given.

a) What is the equation of the graph?

b) Solve .

8. The graph of the transformed absolute value function is given.

a) What is the equation of the graph?

b) Solve .

8. The graph of the transformed absolute value function is given.

a) What is the equation of the graph?

b) Solve .

9. For the function,

a) Algebraically find the coordinates of the vertical intercept.

b) Algebraically find the coordinates of the horizontal intercept(s).

c) When will the function be greater than 0?

9. For the function,

a) Algebraically find the coordinates of the vertical intercept.

b) Algebraically find the coordinates of the horizontal intercept(s).

c) When will the function be greater than 0?

9. For the function,

a) Algebraically find the coordinates of the vertical intercept.

b) Algebraically find the coordinates of the horizontal intercept(s).

c) When will the function be greater than 0?

10. Solve algebraically.

10. Solve algebraically.

10. Solve algebraically.

11. Match the graphs of the data sets with the correlation coefficient that would best represent it.

|  |  |
| --- | --- |
|  | a) I  b) II  c) III |
|  |  |
|  |  |

11. Match the graphs of the data sets with the correlation coefficient that would best represent it.

|  |  |
| --- | --- |
|  | a) I  b) II  c) III |
|  |  |
|  |  |

11. Match the graphs of the data sets with the correlation coefficient that would best represent it.

|  |  |
| --- | --- |
|  | a) III  b) II  c) I |
|  |  |
|  |  |