



1. Which set of data points could be modeled by a decreasing linear function?

DOK: 1

A. $\{(0,0), (1,8), (2,15), (3, 22), (4, 30)\}$ B. $\{(0,5), (1,6), (2,10), (3, 16), (4, 28)\}$

C. $\{(0,50), (1,42), (2,33), (3, 25), (4, 16)\}$ D. $\{(0,64), (1,60), (2,52), (3, 39), (4, 22)\}$

2. Use these functions to answer this question

DOK: 2

$$P(x) = x^2 - x - 6$$

$$Q(x) = x - 3$$

What is $P(x) - Q(x)$?

A. $x^2 - 3$ B. $x^2 - 9$

C. $x^2 - 2x - 3$ D. $x^2 - 2x - 9$

3. The total daily expenses to operate Shelia's pie bakery are the cost of salaries and ingredients. Shelia has four employees, and she pays each worker a daily rate. On average, it costs the same amount of money to make each pie. This expression shows the total daily expenses for Shelia's bakery to make x pies

$$4(75) + \$0.50x$$

What does the term $4(75)$ represent?

- A. The amount of money Shelia must pay her employees per day
- B. The number of pies Shelia must sell per day
- C. The total cost of expenses per pie
- D. The amount of money customers pay per pie

4. Which function represents the data in the table?

DOK: 2

x	3	6	10	15
y	2.5	4	6	8.5

- A. $f(x) = 2x + 1$ B. $f(x) = \frac{x}{2} - 1$
- C. $f(x) = 2x - 1$ D. $f(x) = \frac{x}{2} + 1$

5. What is the solution to this system of equations?

$$x - 3y = 1$$

$$x - 2y = 6$$

DOK:

2

A. (-2,-5)

B. (-2,-1)

C. (4,1)

D. (16,5)

6. Information about the costs of three catering companies is shown in this table

DOK:

3

Catering Company Costs

Acme Catering Company	Best Foods Company	Creative Catering Company
\$6 per person plus a flat \$100 time and equipment charge	\$8 per person plus a flat \$40 time and equipment charge	\$10 per person charge with no other fees

Gavin can spend no more than \$300 on catering. What is the greatest number of people he can invite using one of the three caterers?

A. 30

B. 32

C. 33

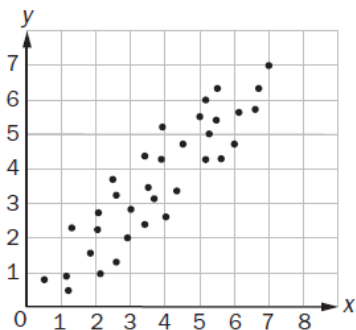
D. 37

7. Which set of data could be BEST modeled by a quadratic function?

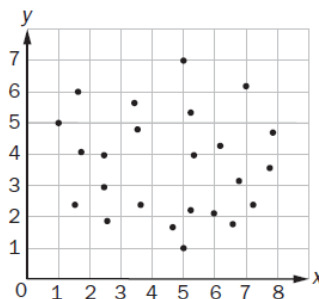
DOK:

2

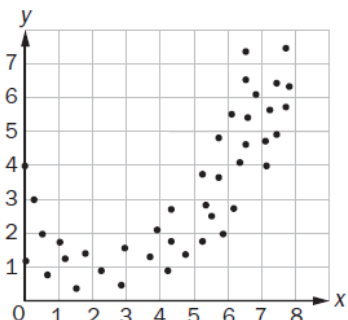
A.



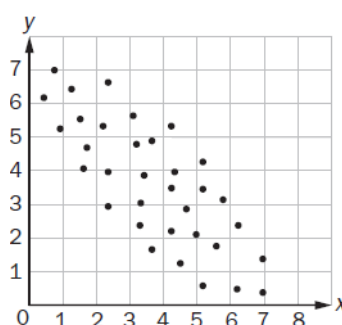
B.



C.



D.

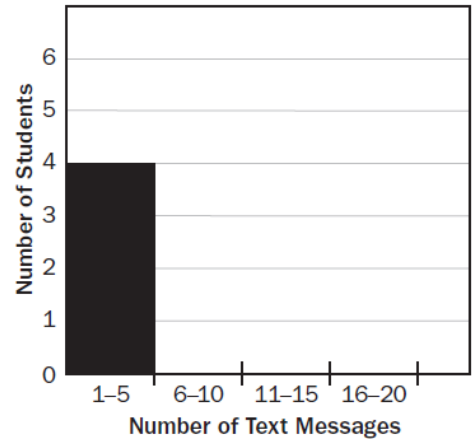


8. This list shows the number of text messages each student in a group sent in one day

DOK: 2
16, 2, 8, 5, 3, 20, 15, 4, 9, 16, 19, 17

The students are creating this histogram to show their data

What should be the height of the bar for 6-10 text messages?



- A. 1
 B. 2
 C. 4
 D. 5

9. Which number is equivalent to $5\sqrt{8} \cdot 3\sqrt{4}$

DOK: 1
 A. $15\sqrt{2}$
 B. $60\sqrt{2}$
 C. $30\sqrt{3}$
 D. $60\sqrt{3}$

10. The first term in an arithmetic sequence is 5. The fourth term in the sequence is -4. The tenth term is -22. Which function can be used to find the n th term of the arithmetic

DOK: 2
 sequence?
 A. $f(n) = -n$
 B. $f(n) = n + 4$
 C. $f(n) = -3n + 8$
 D. $f(n) = \frac{1}{2}(n + 5) + 2$

11. Jose wants to spend no more than \$30 on apples and grapes for the month. Apples cost \$1.50 per pound, and grapes cost \$2 per pound. Jose also wants his monthly caloric intake from apples and grapes to be greater than 2000 calories. He determine that 1 pound of apples has 200 calories and 1 pound of grapes has 300 calories
- DOK: 3

Let a represent the number of pounds of apples, and g represent the number of pounds of grapes. Which system of inequalities can be used to determine the number of pounds of apples and grapes that Jose can buy for a month?

- A. $\begin{cases} 1.5a + 2g \geq 30 \\ 200a + 300g > 2000 \end{cases}$
 B. $\begin{cases} 1.5a + 2g \leq 30 \\ 200a + 300g > 2000 \end{cases}$
 C. $\begin{cases} 2a + 1.5g \leq 30 \\ 300a + 200g > 2000 \end{cases}$
 D. $\begin{cases} 2a + 1.5g \geq 30 \\ 200a + 300g < 2000 \end{cases}$

CONSTRUCTED RESPONSE:

Jill solved the inequality $-\frac{x}{4} < \frac{x+2}{3}$ for x .

Her solution is shown.

Step 1: $-3x < 4x + 8$

Step 2: $-3x - 4x < 8$

Step 3: $-7x < 8$

Step 4: $x < -\frac{8}{7}$

Part A: Explain the mistake Jill made when solving for x . Write your answer on the lines provided.

Part B: Solve the inequality $-\frac{x}{4} < \frac{x+2}{3}$ for x . Show or explain how you found your answer. Write your answer on the lines provided.

The student council makes an initial investment in a savings account that earns interest. The value of the savings account after m months is determined by the function $v(m) = 2,000(1.005)^m$. The student council also has a checking account which has a value after m months that is determined by the function $c(m) = 250 + 100m$.

Part A: What is the initial investment in the savings account?

Part B: What is the interest rate of the savings account?

When the student council has \$2,450 in its checking account, it will purchase new computers for the library.

Part C: After how many months will the student council purchase new computers for the library?

Part D: How much money will be in the student council's savings account when they purchase the new computers? Explain your reasoning. Write your answer on the lines provided.

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Answer Key:

1. C	2. C	3. A	4. D	5. D	6. C	7. C	8. B	9. B	10. C	11. B
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For Question #12**Scoring Rubric**

Points	Description
2	The response achieves the following: <ul style="list-style-type: none"> • student gets Part A AND Part B correct
1	The response achieves the following: <ul style="list-style-type: none"> • student gets Part A OR Part B correct
0	The response achieves the following: <ul style="list-style-type: none"> • student gets neither Part A nor Part B correct

Exemplar Response

Points Awarded	Response
2	Part A: Jill did not invert the inequality sign in step 4 when dividing by a negative number. AND Part B: $-3x < 4x + 8$ $-7x < 8$ $x > \frac{8}{-7}$
1	Part A: Jill did not invert the inequality sign in step 4 when dividing by a negative number. OR Part B: $-3x < 4x + 8$ $-7x < 8$ $x > \frac{8}{-7}$
0	<i>Student does not produce a correct response or a correct process.</i>

For Question #13

Scoring Rubric

Points	Description
4	<p>The response achieves the following: Student demonstrates a complete and thorough understanding of interpreting the parameters in a linear function in terms of a context. Award 4 points for a student response that contains all of the following elements:</p> <ul style="list-style-type: none"> Part A: \$2,000 Part B: 0.5% per month Part C: 22 months Part D: \$2,231.94. Since it will take 22 months for the student council to save enough money, the first function can be solved for $v(22)$, which equals 2,231.94.
3	<p>The response achieves the following: Student demonstrates nearly complete understanding of interpreting the parameters in a linear function in terms of a context. Award 3 points for a student response that contains any 3 of the following elements:</p> <ul style="list-style-type: none"> Part A: \$2,000 Part B: 0.5% per month Part C: 22 months Part D: \$2,231.94. Since it will take 22 months for the student council to save enough money, the first function can be solved for $v(22)$, which equals 2,231.94. <p>Scoring Note: If an error is made in one of these response elements, future response elements based on that should count as correct based upon the previous error. For example, if the student indicates 8 months as the response to Part C and computes a response to Part D that is correct for $v(8)$, then the Part D element should be scored as correct.</p>
2	<p>The response achieves the following: Student demonstrates partial understanding of interpreting the parameters in a linear function in terms of a context. Award 2 points for a student response that contains any 2 of the following elements:</p> <ul style="list-style-type: none"> Part A: \$2,000 Part B: 5% per month (see "Note for Educators" below) Part B: 0.5% (with or without "rate" duration included) Part C: 22 months Part D: \$2,231.94 <p>Scoring Note: If an error is made in one of these response elements, future response elements based on that should count as correct based upon the previous error. For example, if the student indicates 8 months as the response to Part C and computes a response to Part D that is correct for $v(8)$, then the Part D element should be scored as correct.</p>
1	<p>The response achieves the following: Student demonstrates minimal understanding of interpreting the parameters in a linear function in terms of a context. Award 1 point for a student response that contains any 1 of the following elements:</p> <ul style="list-style-type: none"> Part A: \$2,000 Part B: 5% per month (See "Note for Educators" below) Part B: 0.5% (with or without "rate" duration included) Part B: 1.005% per month Part C: 22 months Part D: \$2,231.94 <p>Scoring Note: If an error is made in one of these response elements, future response elements based on that should count as correct based upon the previous error. For example, if the student indicates 8 months as the response to Part C and computes a response to Part D that is correct for $v(8)$, then the Part D element should be scored as correct.</p>

Points Awarded	
4	Part A: \$2,000 Part B: 0.5% per month Part C: 22 months Part D: \$2,231.94
3	Part A: \$2,000 Part B: 5% per month Part C: 22 months Part D: \$2,231.94
2	Part A: \$2,000 Part B: 5% per month Part C: 22 months Part D: \$2,000
1	Part A: \$2,000 Part B: 5% Part C: 20 months Part D: \$4,000
0	Part A: \$250 Part B: 1.005% Part C: 5 Part D: \$2,000