

Algebra 1 Mastery Test #1 Review

1. Evaluate the expression for the given value of the variable.
 $3n + 3$ for $n = 9$
2. Evaluate the expression for the given value of the variable.
 $6(x + 3) - 5$ for $x = 9$
3. Evaluate $8y + 7$ for $y = 8$.
4. Find the value of 5^4 .
5. Order the numbers 3^3 , 9 , 2^7 , 7^2 , 8^1 from least to greatest.

Simplify:

6. $3 + 2(3 + 4)^2$
7. Evaluate $\frac{jk}{j+k}$ when $j = 7$ and $k = 13$.
8. Simplify $9 \times 11 + 4 - 8 \div 4$.

Name: _____

ID: A

9. Evaluate the expression $27 \cdot 3^2 - 3 \cdot 3^2$.

10. Simplify $(7 \cdot 6^2 - 7 \cdot 2^2) \div (4 + 3)$.

11. Janice baked 27 cookies with 9 ounces of chocolate chips. How many cookies could she bake with one ounce of chocolate chips ?

12. You ran for 20 minutes and burned 155 calories. How many calories did you burn per minute?

13. It is known that a cyclist can travel 41.4 miles in 3 hours. At that rate, how far can the same cyclist travel in 7 hours?

14. Write a variable expression for "7 times the sum of x and 5."

15. Write an expression for "three less than five times a number x ."

16. Is 7 a solution of $2u + 3 \geq 13$?

17. Is $x = 7$ a solution of the inequality $5 + 2x \leq 15$?

18. Is $x = 2$ a solution of the inequality $5x - 2 \geq 7$?

Solve the equation using mental math.

19. $z + 18 = 30$

20. $3x = 33$

- _____ 21. A jumbo jet carries 340 passengers, 38 in first class, and the remainder in coach. If the average first class ticket is \$950 and the average coach ticket is \$493, how much will the airline gross if the plane is full?
- a. \$245,310 b. \$188,006 c. \$184,986 d. \$305,634

- _____ 22. At 57 km/h, how far can you travel in 7 h?
- a. 399 km b. 513 km c. 434 km d. 285 km

- _____ 23. Make an input-output table for the function $y = x + 2$. Use x -values of 1, 2, 3, 4, and 5.

a.

Input, x	1	2	3	4	5
Output, y	1	2	3	4	5

c.

Input, x	1	2	3	4	5
Output, y	3	4	5	6	7

b.

Input, x	1	2	3	4	5
Output, y	3	5	7	9	11

d.

Input, x	1	2	3	4	5
Output, y	2	3	4	5	6

24. Which of the functions represents the input-output table?

Input	Output	Functions
0	4	$y = 4x - 4$
1	8	$y = 4x + 4$
2	12	$y = 4x - 5$
3	16	$y = 5x + 4$

Write a function rule for the input-output table.

- 25.

Input x	2	3	4	5
Output y	8	12	16	20

26. Find the range of the function.

Input	Output
6	10
4	13
11	12

27. Make an input-output table to represent the function. Use 1, 2, 3, 4, and 5 as the domain.
-
- $y = 3x + 9$

- ____ 28. Determine whether the relation is a function.

Kumiko's age (years)	11	12	13	14	15	16
Kumiko's height (inches)	57	58	59	64	66	66

- a. No, the relation is not a function. b. Yes, the relation is a function.

29. **EXTENDED RESPONSE** Write your answer on a separate piece of paper.

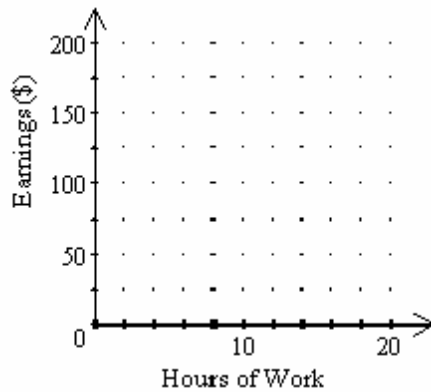
Kim's earnings from her part-time job can be expressed by a linear equation of the form $y = ax$, where x represents how many hours she works in a pay period, a is her hourly wage, and y is her earnings, in dollars. She prepared the table below so she could make a graph of her income versus the number of hours she works in a pay period.

Hours of Work	Earnings (\$)
3	20.25
5	33.75
6	40.50
9	67.50
15	101.25
20	135.00

Part A Sketch a graph of the ordered pairs shown in the table above

Part B One of the rows in Kim's original table has an incorrect earnings value. Which ordered pair on the graph has an incorrect y -value for the time given? Explain how you can identify that point.

Part C What should the y -value be for the number of hours of work in the ordered pair identified in Part B? Explain your reasoning.



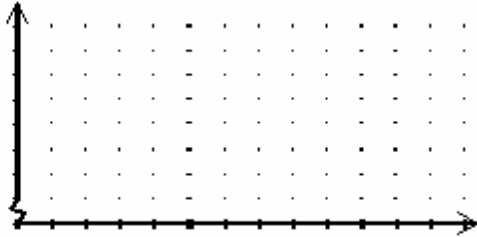
Part A

Name: _____

ID: A

30. The table shows the study times and test scores for a number of students. Draw a scatter plot of the data. Put study time on the horizontal axis and test score on the vertical axis.

Study Time (min)	8	14	19	26	30	33	35	40
Test Score	60	65	61	70	69	70	75	76



Algebra 1 Mastery Test #1 Review Answer Section

1. ANS:
30

DIF: Level A REF: 0802f1b0-1a76-11df-b9de-001e33aa91d2
TOP: Lesson 1.1 Evaluate Expressions KEY: algebraic expression | variable

2. ANS:
67

DIF: Level B REF: 0807b470-1a76-11df-b9de-001e33aa91d2
TOP: Lesson 1.1 Evaluate Expressions KEY: algebraic expression | variable

3. ANS:
71

DIF: Level A REF: 07efe6b0-1a76-11df-b9de-001e33aa91d2
TOP: Lesson 1.1 Evaluate Expressions
KEY: algebraic expression | evaluate | order of operations | substitute

4. ANS:
625

DIF: Level A REF: 080ed890-1a76-11df-b9de-001e33aa91d2
TOP: Lesson 1.1 Evaluate Expressions KEY: evaluate | exponents | power

5. ANS:
 $8^1, 9, 3^3, 7^2, 2^7$

DIF: Level C REF: 07e19e70-1a76-11df-b9de-001e33aa91d2
TOP: Lesson 1.1 Evaluate Expressions KEY: exponent | order

6. ANS:
101

DIF: Level B REF: MALG0078 TOP: Lesson 1.2 Apply Order of Operations
KEY: order of operations

7. ANS:
 $\frac{91}{20}$

DIF: Level B REF: MALG0086 TOP: Lesson 1.2 Apply Order of Operations
KEY: whole | variable | evaluate | substitute | rational expression

8. ANS:
101

DIF: Level B REF: MALG0087 TOP: Lesson 1.2 Apply Order of Operations
KEY: order of operations | whole | decimal

9. ANS:
216

DIF: Level B REF: MALG0091 TOP: Lesson 1.2 Apply Order of Operations
KEY: order of operations | evaluate | exponent | power

10. ANS:
32

DIF: Level C REF: MALG0092 TOP: Lesson 1.2 Apply Order of Operations
KEY: evaluate | exponent | power | rational | order of operations | simplify | expression

11. ANS:
3 cookies

DIF: Level B REF: MALG0103 TOP: Lesson 1.3 Write Expressions
KEY: rate | time | total | divide

12. ANS:
7.75 calories per minute

DIF: Level B REF: MALG0104 TOP: Lesson 1.3 Write Expressions
KEY: unit | rate

13. ANS:
96.6 miles

DIF: Level B REF: MALG0167 TOP: Lesson 1.3 Write Expressions
KEY: ratio | word | rate | time | distance

14. ANS:
 $7(x + 5)$

DIF: Level B REF: MALG0096 TOP: Lesson 1.3 Write Expressions
KEY: word | expression | translate

15. ANS:
 $5x - 3$

DIF: Level B REF: MALG0098 TOP: Lesson 1.3 Write Expressions
KEY: variable | translate | word | symbol

16. ANS:
yes

DIF: Level B REF: MALG0132 TOP: Lesson 1.4 Write Equations and Inequalities
KEY: inequality | linear

17. ANS:
No

DIF: Level B REF: MALG0133 TOP: Lesson 1.4 Write Equations and Inequalities
KEY: inequality | solve | solution | determine

18. ANS:
Yes

DIF: Level B REF: MALG0134 TOP: Lesson 1.4 Write Equations and Inequalities
KEY: inequality | solve | solution | determine

19. ANS:
 $z = 12$

DIF: Level A REF: 7ee20f22-cdbb-11db-b502-0011258082f7
TOP: Lesson 1.4 Write Equations and Inequalities KEY: Equation | mental math

20. ANS:
 $x = 11$

DIF: Level A REF: 7ee23632-cdbb-11db-b502-0011258082f7
TOP: Lesson 1.4 Write Equations and Inequalities KEY: Equation | mental math

21. ANS: C DIF: Level B REF: MALG0150
TOP: Lesson 1.5 Use a Problem Solving Plan
KEY: subtract | multiply | linear combination | word | add

22. ANS: A DIF: Level A REF: MALG0109
TOP: Lesson 1.5 Use a Problem Solving Plan KEY: unit rate

23. ANS: C DIF: Level B REF: MALG0203
TOP: Lesson 1.7 Represent Functions as Rules and Tables
KEY: graph | output | function | table | input

24. ANS:
 $y = 4x + 4$

DIF: Level B REF: MALG0204 TOP: Lesson 1.7 Represent Functions as Rules and Tables
KEY: function | table | linear

25. ANS:
 $y = 4x$

DIF: Level B REF: MALG0206 TOP: Lesson 1.7 Represent Functions as Rules and Tables
KEY: equation | function | table | write

26. ANS:
The range is the collection of the output values: 10, 13, and 12.

DIF: Level B REF: MALG0193 TOP: Lesson 1.7 Represent Functions as Rules and Tables
KEY: domain | range | relation

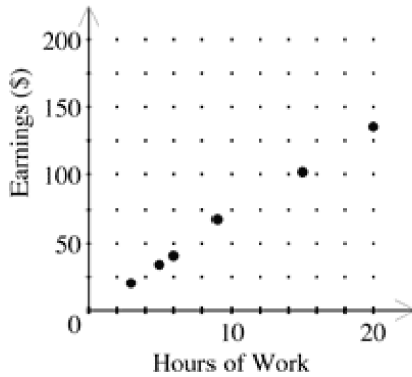
27. ANS:

Input	1	2	3	4	5
Output	12	15	18	21	24

DIF: Level B REF: MALG0201 TOP: Lesson 1.7 Represent Functions as Rules and Tables
KEY: output | function | table | rule | input

28. ANS: B DIF: Level A REF: 08139b50-1a76-11df-b9de-001e33aa91d2
TOP: Lesson 1.8 EXT Determine Whether a Relation is a Function
KEY: relations | functions | table

29. ANS:
Part A



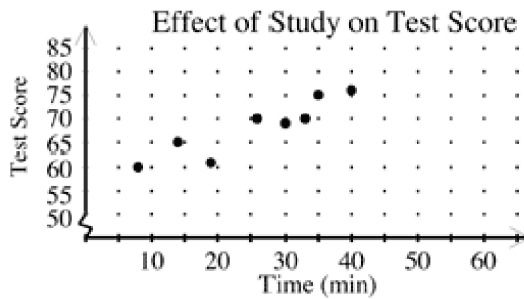
Part B The ordered pair $(9, 67.50)$ has an incorrect y -value. That point does not lie on the line that passes through all of the other points in the graph. Solutions to a linear equation should all lie on the same line.

Part C The y -value in $(9, 67.50)$ should be 60.75. If you divide the y -value by its corresponding x -value for any point on the line, you find that Kim earns \$6.75 per hour. So, if Kim works 9 hours, she should earn $9(6.75) = \$60.75$.

DIF: Level B REF: MCT80504 TOP: Lesson 1.8 Represent Functions as Graphs

KEY: graph | table | interpret

30. ANS:



DIF: Level A REF: MMT30354

TOP: Lesson 1.8 Represent Functions as Graphs

KEY: scatter plot