Math 1 EOC Review Parallel Problems

Unit 1

Gridded

6. Samantha and Jillian were going for a walk. Jillian left 15 seconds ahead of Samantha.

• Samantha walked at a speed of 7 feet per second.

• Jillian walked at a speed of 6 feet per second.

How many seconds had Jillian been walking when the two girls had walked the same distance?

Multiple Choice

14. A school purchases boxes of t-shirts for a fundraiser. Each box has 120 t-shirts, and the school pays $1500 per box.

How much does the school need to charge per shirt to make a profit of $900 per box?

A) $7.50   B) $12.50

C) $20.00   D) $25.00

15. The volume of a cylinder can be found using the formula: $V = \Pi r^2 h$, where V is the Volume, r is the radius of the base, and h is the height. What equation finds h, given V and r? (Remember, Π is a number.)

A) $\frac{\Pi r^2}{V} = h$ B) $V\Pi r^2 = h$

C) $\frac{V\Pi}{r^2} = h$ D) $\frac{V}{\Pi r^2} = h$

28. Sarah mixed grapes and blueberries.

She bought 6 pounds of grapes for a total cost of $18.

The cost per pound for blueberries is 30% more than the cost per pound for grapes.

Sarah bought enough blueberries that when he mixed them with the almonds, the mixture had a value of $3.25 per pound.

Approximately what percent of the mixture, by weight, was grapes?

A) 50%   B) 60%

C) 70%   D) 80%

30. Mariah noticed that various combinations of $1 and $5 bills could make $23. Let x represent the number of $5 bills and y represent the number of $1 bills. What is the domain where y is a function of x and the total amount is $23?

A) {0, 1, 2, 3, 4}

B) {1, 2, 3, 4}

C) {0, 1, 2, 3, 4, 5, 6, …, 23}

D) {1, 2, 3, 4, 5, 6, …, 23}

Unit 2

Gridded Response

11. Suppose that the function f(p) = 3p + 30 represents the number of points you earn on a test for getting p questions correct. You earned 13 extra credit points for a project. How many questions must you answer correctly to earn an A (90 points) on the test?

Multiple Choice

18. For the two linear functions, f(x) and g(x):

f(x) = 3x − 9   g(x):

x	y
1	2
3	10
4	14
7	26

What is the difference when the y-intercept of f(x) is subtracted from the y-intercept of g(x)?

A) -11   B) -7   C) 2   D) 7

19. For a certain section, Panthers season tickets cost $70 per game for *x* games with a $2,000 charge for a Personal Seat License. Courtside season tickets to the Hornets cost $250 per game for *x* games with no PSL charge. What function represents the difference in cost between Panthers and Hornets season tickets?

A) f(x) = -180x + 2000

B) f(x) = -180x − 2000

C) f(x) = 70x − 1750

D) f(x) = -1820x

21. Dayana compared the slope of the following two functions:

F(x):
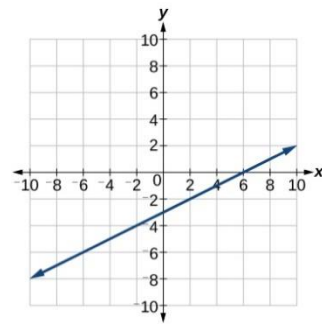
G(x): Function with x-intercept at 3 and y-intercept at -2.5.

What is the slope of the function with the larger slope?

A) ½   B) 5/6

C) 6/5   D) 2

22. If you buy a car for $20,000, the daily amount of depreciation in the first year can be approximately expressed as the linear function: f(x) = -0.00068d + 20000, for d days after the purchase of the car. In terms of days and value, what is the meaning of the slope?

A) The car decreases in value by about 6.8% each day

B) The car decreases in value by about 0.068% each day

C) The can decreases in value by about 1.068% each day.

D) The car decreases in value by about 6.8% each year.

26. The table below shows a car dealer's paycheck based on the number of cars she sold.

Cars Sold	Monthly Paycheck
6	$2,500
12	$4,000
18	$5,500
24	$7,000

What is the meaning of the slope of the linear model?

A) The dealer gets $2,500 for every car she sells.

B) The dealer gets $2,500 for every 6 cars she sells.

C) The dealer gets $1,500 for every car she sells.

D) The dealer gets $1,500 for every 6 cars she sells.

29. Keyshawn and Trey begin saving money each week. After x weeks, the following functions represent the amount of money they have saved:

Keyshawn: $f(x) = 5x + 36$

Trey: $g(x) = 8x + 9$

After how many weeks will they have the same amount of money?

A) 1 week   B) 5 weeks

C) 9 weeks   D) 13 weeks

31. A really bad cold is going around. The following table represents the number of sick students in a school on a given day.

Days	1	2	3	4	5	6	7
Sick kids	12	23	34	45	56	67	78

What function could represent the number of sick students after x days, assuming the cold keeps spreading?

A) $f(x) = 11x + 12$

B) $f(x) = 12x + 11$

C) $f(x) = 11 + 12(x - 1)$

D) $f(x) = 12 + 11(x - 1)$

32. Jesus has $34 in his bank account. With his new job, he deposits the same amount each week into the account. After 35 weeks, Jesus has $909. What function can find the amount in Jesus's account after w weeks?

A) $f(w) = 35w + 34$

B) $f(w) = 25w + 34$

C) $f(w) = \frac{909}{35}w + 34$

D) $f(w) = 25(w - 1) + 34$

35. What function describes the nth term of the following sequence?

$$9, 16, 23, 30, \dots$$

A) $f(n) = 9n + 7$

B) $f(n) = 7n + 9$

C) $f(n) = 9(n - 1) + 7$

D) $f(n) = 7(n - 1) + 9$

37. The table below shows average salaries based on the number of years high school graduates attended college.

Yrs of college	Yearly Income
0	$34,736
1	$38,532
2	$41,184
4	$57,252
6	$68,952
8	$82,732
10	$85,228

Approximately what percentage of the values are more than $2,000 off the expected value from the line of best fit?

A) 14%   B) 28%

C) 43%   D) 57%

39. The graph below shows the weekly paycheck amount for a sales employee.
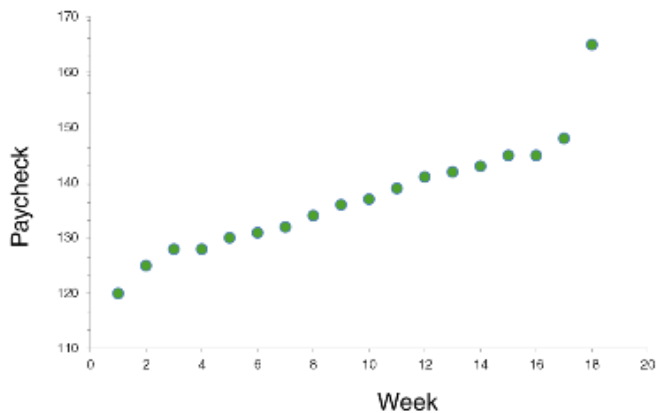
What describes the relationship between the week and the amount of the paycheck?

A) Strong positive relationship

B) Strong negative relationship

C) Weak positive relationship

D) Weak negative relationship

Unit 3

Gridded Response

7. The marching band sells cases of oranges and grapefruit for a fundraiser.

**Shakira sells 5 cases of oranges and 8 cases of grapefruit for $235.**

Jeff sells 3 cases of oranges and 2 cases of grapefruit for $85.

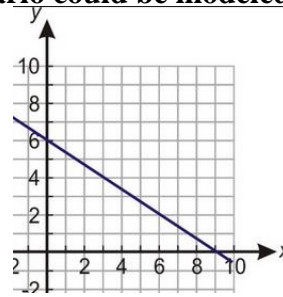**How much would 1 case of each fruit cost together?**

10. Four times Joe's age plus 2 times Tim's age equals 50. Tim's age is also 2 less than Joe's age. How old is Joe?

Multiple Choice

1. Robert's bus ride is 5 minutes more than 1.5 the length of Jessie's bus ride. Which graph represents the length of their rides?

A

B

C

D
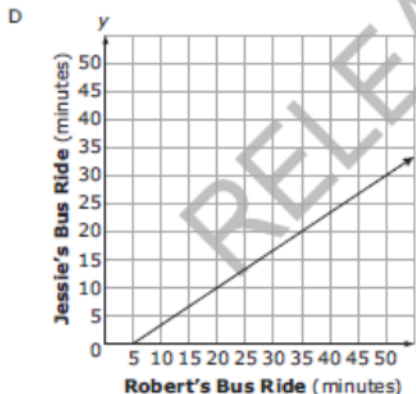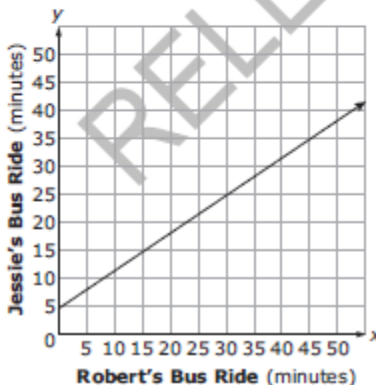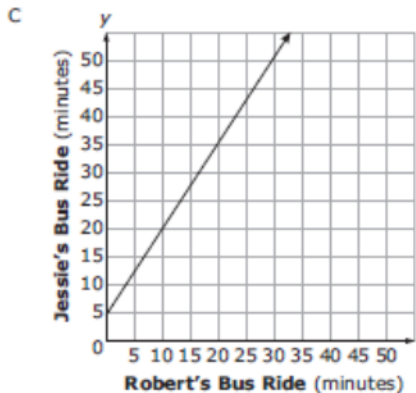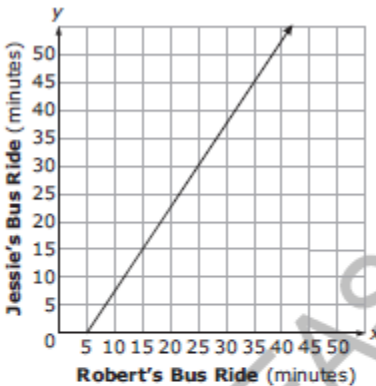
2. What scenario could be modeled by the graph below?

A) The number of basketball players, y, plus ⅔ the number of football players, x, is no more than 6.

B) The number of basketball players, y, plus ⅔ the number of football players, x, is no more than 9.

C) The number of basketball players, y, minus ⅔ the number of football players, x, is no more than 6.

D) The number of basketball players, y, plus $^3/_2$ the number of football players, x, is no more than 6.

23. If B is the midpoint of AC, with point A at (5, 2) and point C at (9, 0), what is the equation of the line perpendicular to AC that passes through B?

A) y = - ½ x – 13

B) y = 2x – 13

C) y = - ½ x + 5

D) y = 2x + 5

24. A triangle has vertices at (-3, 2), (1, 0), and (2, -2). What is the approximate perimeter of the triangle?

A) 7 units **B) 9 units**

C) 11 units **D) 13 units**

33. The vertices of quadrilateral ABCD are at A (5, 4), B (8, -3), C (1, 3), and D (-2, 10). What type of quadrilateral is ABCD?

A) Square

B) Rectangle that is not a square

C) Parallelogram that is not a rectangle

D) Trapezoid

34.

P

R

Q

S
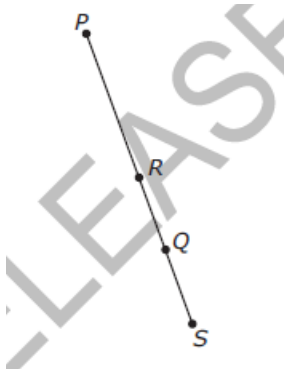
In the picture above, Q is the midpoint of RS, and R is the midpoint of PS. If point Q has coordinates (3, 7) and R has coordinates (6, 12), what are the coordinates of point P?

A) (4.5, 9.5)   **B) (0, 2)**

C) (12, 22)   **D) (12, 24)**

Unit 4

13. After 5 minutes of a basketball game, the Hornets have 3 points and the Bulls have 10 points. Every minute after that, the Hornets' score doubles and the Bulls score 10 more points. After how many total minutes will the Hornets have the lead?

Multiple Choice

17. The table below represents the average price of a movie ticket in the given year.

Year	1987	1991	1995	1999	2003	2007	2009
Price ($)	3.91	4.21	4.35	5.06	6.03	6.88	7.50

To the nearest cent, what was the average rate of change of the ticket price between 1991 and 2009?

A) $.16/year   **B) $.18/year**

C) $.23/year   **D) $3.29/year**

20. The following table shows the amount earned over a number of years (x) using two different investment strategies.

Time	Table 1	Table 2
1	4.40	5.80
2	4.84	7.60
3	5.32	9.40
4	5.86	11.20
5	6.44	13.00
10	10.37	22.00
20	26.91	40.00
30	69.80	58.00
50	469.56	94.00

Which statement **best** describes her results?

A   The temperature using both methods changed at a constant rate.

B   The temperature using both methods changed exponentially.

C   The temperature using Method 2 changed at a constant rate.

D   The temperature using Method 2 changed exponentially.

Unit 5

Gridded Response

8. What is the largest of three consecutive positive integers if the product of the two smallest is equal to 10 more than 4 times the largest?

9. The function $h(t) = -3t^2 + 12t + 63$ models the flight of a ball t seconds after it is thrown. When can the ball be expected to hit the ground?

12. The longer leg of a right triangle is 7 cm longer than the shorter leg. The hypotenuse is 8 cm longer than the shorter leg. What is the perimeter of the triangle?

Multiple Choice

3. Which expression is equivalent to $g^2 - 100$?

A) $(g - 10)^2$ B) $(g + 10)(g - 10)$

C) $(g + 100)(g - 100)$ D) $(g + 10)^2$

4. Which is the graph of $f(x) = x^2 - 2x + 4$?

5. The carpet in your new college dorm has a length 1 foot longer than its width. If you need to increase the length of every side by 7 feet, what expression represents the area of the new carpet?

A) 56 ft² B) $x^2 + 56$ ft²

C) $x^2 + 9x + 8$ ft² D) $x^2 + 15x + 56$ ft²

16. You and a friend are hiking in the mountains. You want to climb to a ledge that is 20 ft. above you. The height of the grappling hook you throw is given by the function $h(t) = -16t^2 + 32t + 5$. What is the maximum height of the grappling hook?

A) 1 ft. B) 5 ft.

C) 21 ft. D) 28 ft.

27. The area of a trapezoid is found using the formula $A = \frac{1}{2} h (b_1 + b_2)$, where h is the height and b_1 and b_2 are the bases. What expression represents the area of the trapezoid below?

A) $6K^2 + 78K + 240$ B) $3K^2 + 39K + 120$

C) $6K^2 + 240$ D) $3K^2 + 120$

Multiple Choice

25. The table below, from Wikipedia, shows U.S. casualties in several different wars.

World War I	1917–18	116,516
Vietnam War	1961–75	58,209
Korean War	1950–53	54,246
American Revolutionary War	1775–83	25,000
War of 1812	1812–15	15,000
Mexican–American War	1846–48	13,283

In World War II, there were about 405,000 U.S. casualties. Which would be true is World War II were included in the data set?

A) The mean would decrease.

B) The median would be over 100,000.

C) The range would stay the same.

D) World War II would be an outlier.

36. A student's test scores on the first 5 tests were:

67, 98, 72, 83, 90

What would happen to the data distribution if she scored 60, 92, 71, and 95 on the next four tests?

A) The data would become less peaked and more widely spread.

B) The data would become less peaked and less widely spread.

C) The data would become more peaked and more widely spread.

D) The data would become more peaked and less widely spread.