End of Course Test (RM C2)

1A) Cynthia pays $0.24 per print at a photography store. James is a member of the Print Club and pays a $5 monthly fee, plus $0.15 per print.

Part A

Complete the table to find the total costs for each number of prints. Round to the nearest cent if necessary.

Number of Prints	Cynthia's Total Cost	James's Total Cost
10	$_____	$_____
20	$_____	$_____
30	$_____	$_____
40	$_____	$_____
50	$_____	$_____
60	$_____	$_____

1B) Part B

Determine whether each statement is True or False.

	True	False
James's total cost is proportional to the number of prints.	○	○
Cynthia's total cost has a constant of proportionality.	○	○
James's total cost has a constant of proportionality.	○	○
The graph of the line representing Cynthia's total cost passes through the origin.	○	○

End of Course Test (RM C2)

2A) A surf board manufacturer sells short boards, long boards, and paddle boards. Each board can be built using fiberglass, wood, or composite materials. Any board can be red, blue, green, purple, yellow, or white.

Part A

How many different surf boards can the manufacturer build?

_____ boards

2B) Part B

The manufacturer produces the same number of each surf board. A board to be built is chosen at random. What is the probability that the board will be a white long board?

P(white long board): ___

3) Tomas needs lumber to make corner braces for a piece of furniture he is building. He cuts $4\frac{1}{4}$ feet from a board that is 8 feet long. With the wood he has left, Tomas makes 18 corner braces of equal size. How many inches of wood does each brace use?

___ in.

4) Caleb is training for a bike race. Each week he wants to increase the number of miles he rides by 20%. Caleb biked 5 miles the first week. Complete the table to find the distance he should bike each week. Round to the nearest tenth if necessary. Then complete the sentence to describe how to find a 20% increase.

Week	Distance (mi)
1	5
2	_____
3	_____
4	_____
5	_____

To increase the number of miles by 20%, multiply by _____.

End of Course Test (RM C2)

5) Fill in the blanks using the available answer choices.

Ming is competing in a frisbee golf tournament. The table shows his scores for the first 9 holes. The score indicates how many over or under par he is for each hole. Par is the number of strokes an expert player should normally need to finish a hole. The par score for these holes is 27. Describe Ming's total nine-hole score compared to par.

Hole	1	2	3	4	5	6	7	8	9
Score	−1	−1	0	1	−1	0	0	1	−1

Ming scored _____ which is _____ _____ par.
        (Blank 1)   (Blank 2)   (Blank 3)
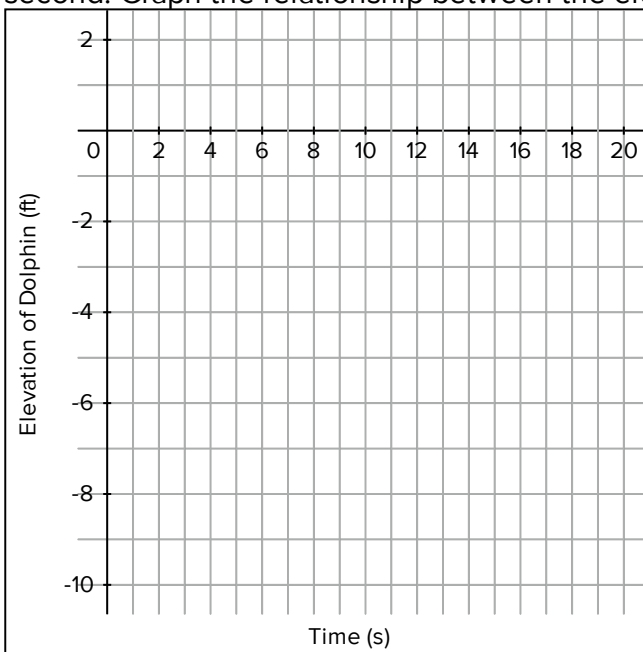
Blank 1 options
- 23
- 25
- 26
- 28

Blank 2 options
- 1
- 2
- 3

Blank 3 options
- over
- under

6) From 2 feet below sea level, a dolphin dives straight down at a steady speed of $\frac{3}{4}$ feet per second. Graph the relationship between the elevation of the dolphin since it began its descent.

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7) A rectangle is inside another rectangle whose area is 120 square inches. The smaller rectangle has a length of 4 inches and a width that is 1 inch less than its length. The width of the larger rectangle is 5 times the smaller rectangle's width. Determine whether each statement is True or False.
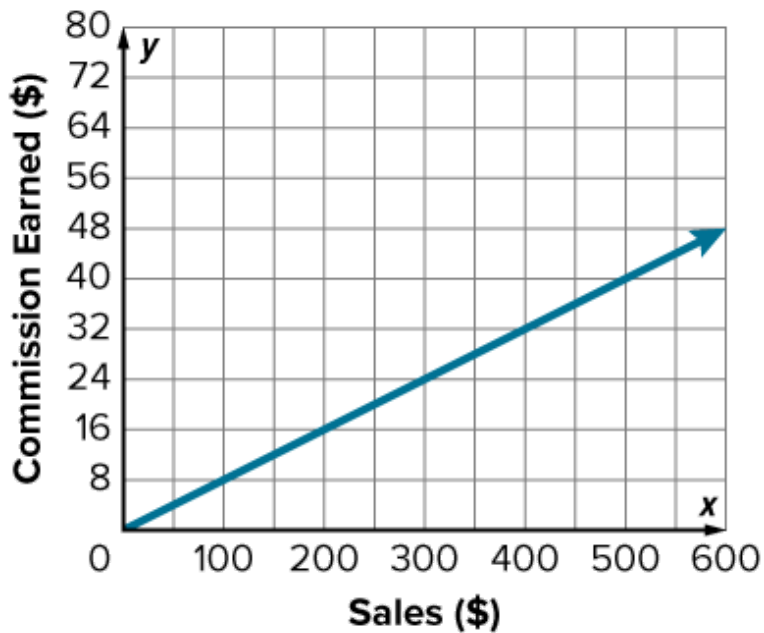
	True	**False**
The width of the larger rectangle can be found by computing 5 × (4 − 1).	○	○
The length of the larger rectangle can be found by computing 120 ÷ [5 × (4 − 1)].	○	○
The area of the smaller rectangle can be found by computing (4 + 1)4.	○	○

8) Jacob mowed lawns in his neighborhood last weekend to earn spending money. He spent 25% of the money he earned at a family fun center. Of the money he spent at the fun center, $\frac{2}{3}$ was spent on the batting cages which cost $12. How much money did Jacob earn mowing lawns? Round to the nearest cent if necessary.

$_____

End of Course Test (RM C2)

9) The graph represents the amount of commission a salesperson earns for different sale amounts. Use the graph to determine whether each statement is True or False.

	True	False
The salesperson earns a commission of 8% on sales.	O	O
The percent increase of the commission for sales of $100 and $200 is 10%.	O	O
The ordered pair (350, 28) represents a $28 commission for sales totaling $350.	O	O

End of Course Test (RM C2)

10) Fill in the blanks using the available answer choices.

Nikki completes a lap around the school track in x number of seconds. Olivia takes 12 seconds less than Nikki. Tien takes twice as long as Olivia. Sara takes half the time of the sum of Nikki's and Olivia's time. Write an algebraic expression for the number of seconds each person takes to run a lap around the track.

Olivia: _____ seconds
(Blank 1)

Tien: _____ seconds
(Blank 2)

Sara: _____ seconds
(Blank 3)

Nikki: x seconds

Blank 1 options	Blank 2 options	Blank 3 options
• $x - 12$	• $x - 6$	• $x + 6$
• $12x$	• $2x - 24$	• $2x + 6$
• $x + 12$	• $x - 24$	• $x - 6$
• $x \div 12$	• $2x + 24$	• $2x - 6$

11) Write a real-world problem for each equation. Then solve the equation and interpret the solution in the context of your problem.

a. $75 = 5x + 20$

b. $7.25x + 12.5 = 41.5$

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End of Course Test (RM C2)

12) Fill in the blanks using the available answer choices.

Factor each expression and write the simplified form in the table.

Expression	Factored Form
$35x - 15$	$\underset{\text{(Blank 1)}}{\underline{\hspace{2cm}}}(\underset{\text{(Blank 2)}}{\underline{\hspace{2cm}}}x - 3)$
$60x + 12$	$12(\underset{\text{(Blank 3)}}{\underline{\hspace{2cm}}}x + \underset{\text{(Blank 4)}}{\underline{\hspace{2cm}}})$
$-20x - 12$	$\underset{\text{(Blank 5)}}{\underline{\hspace{1cm}}}(\underset{\text{(Blank 6)}}{\underline{\hspace{1.5cm}}}x + \underset{\text{(Blank 7)}}{\underline{\hspace{1.5cm}}})$

Blank 1 options
- 3
- 5
- 7

Blank 2 options
- 3
- 5
- 7

Blank 3 options
- 1
- 5
- 6

Blank 4 options
- 1
- 5
- 6

Blank 5 options
- −2
- −3
- −4

Blank 6 options
- 2
- 3
- 5

Blank 7 options
- 2
- 3
- 5

13)
Regina is performing 6 gymnastics routines at a state competition and hopes to earn a 90% or better on her overall possible score. The table represents the points she has earned so far during her first few routines. Write an inequality to express the number of points Regina still needs to reach her goal. Then solve the inequality and interpret the solution.

Routine	1	2	3	4	5	6
Regina's Score	14	16	23			
Possible Points	15	20	25	30	40	50

End of Course Test (RM C2)

14) A medium pizza at The Slice has an approximate area of 113.1 square inches. Determine whether each object has the same radius as the pizza. Select Yes or No.

	Yes	No
A clock face with an approximate circumference of 18.8 inches.	○	○
A circular poster with diameter 12 inches.	○	○
One of four circular plates with a total approximate area of 346.4 square inches.	○	○
One of three circular mirrors with a total approximate circumference of 113.1 inches.	○	○

End of Course Test (RM C2)

15) Fill in the blanks using the available answer choices.

Figure A and Figure B are three-dimensional figures. Complete the table to describe the figures.
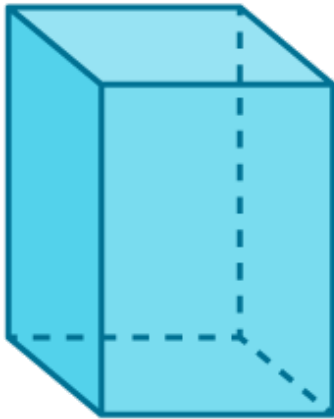
Figure A

Figure B

	Figure A	**Figure B**
type of three-dimensional figure	(Blank 1)	(Blank 2)
shape of base	(Blank 3)	(Blank 4)
shape of a horizontal cross section	(Blank 5)	(Blank 6)

Blank 1 options
- prism
- cone
- pyramid

Blank 2 options
- cylinder
- cone
- prism

Blank 3 options
- rectangle
- triangle
- circle

Blank 4 options
- rectangle
- triangle
- circle

Blank 5 options
- rectangle
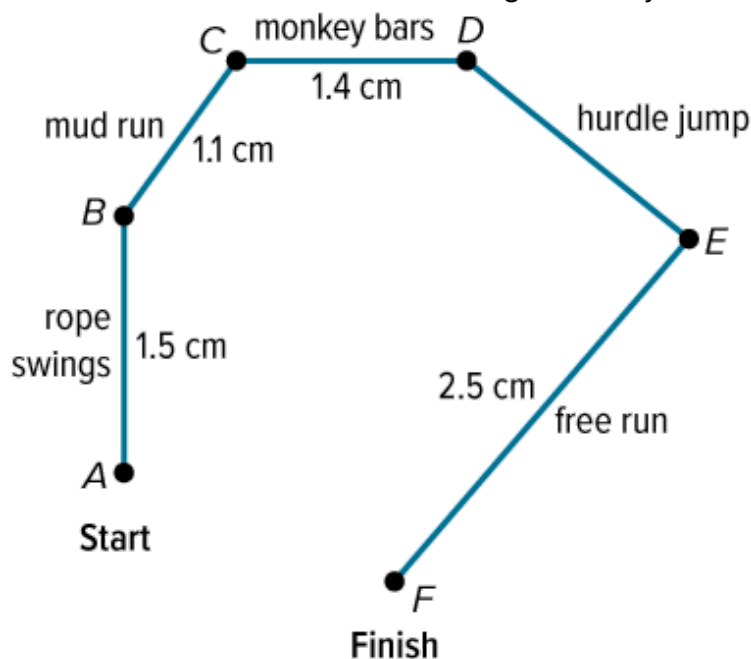- triangle
- trapezoid

Blank 6 options
- rectangle
- circle
- oval

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End of Course Test (RM C2)

16) Kylie and Julia are playing a board game. There are 10 red and 5 blue tiles in a bag. On each turn, players select a tile at random and then replace it in the bag. Determine whether each statement is True or False.

	True	False
The probability of selecting a red tile is less than half.	O	O
The probability of selecting a blue tile is less than half.	O	O
If the chips are randomly arranged into 1 stack, it is more likely that the top chip will be red than the bottom chip.	O	O
If the chips are randomly arranged into 1 stack, it is more likely that the top chip will be red than blue.	O	O
A chip is selected at random and replaced 120 times from the bag. The tile will be blue approximately 40 times.	O	O

17) Terrance is competing in an obstacle course race. A model of the course is drawn with a scale of 1 cm = 50 yd. How many centimeters does segment *DE* have to measure so that the model matches the actual entire course length of 415 yards?

___ cm

_____

End of Course Test (RM C2)

18) Kurt is assembling a storage shed that is shaped like a pentagonal prism. The bases of the prism are the front and back of the shed. The bases are pentagons shaped like a rectangle with a triangle on top. The pentagon has a base length of 8 feet, vertical side lengths of 6 feet, and an overall height of 8 feet, measured from the base to the peak of the roof. The shed is 7.5 feet long.

Part A

What is the volume of the shed?

_____ ft^3

Part B

The shed has shingles on the roof and two windows on the sides that are 2 feet in length and 1.5 feet in width. Kurt will paint the exterior sides of the shed. What is the surface area of the shed that will be painted? If Kurt paints 2 coats on the shed and one gallon of paint covers 225 square feet, how many gallons of paint should be purchased?

area to be painted: _____ ft^2

gallons needed: _____

19) A food truck sells chicken parmesan, meatball, turkey club, and pastrami sandwiches on white or whole wheat bread. Suppose a customer chooses a type of sandwich and type of bread at random. Determine whether each statement is True or False.

	True	False
The probability of ordering a meatball sandwich on white bread is 0.125.	O	O
The probability of ordering a sandwich on whole wheat bread is 0.5.	O	O
The tree diagram that represents the possible outcomes has 2 outcomes in the first column, and each outcome branches into 3 outcomes in the second column.	O	O
A table that represents the possible outcomes could have 2 bread columns and 8 sandwich type rows.	O	O

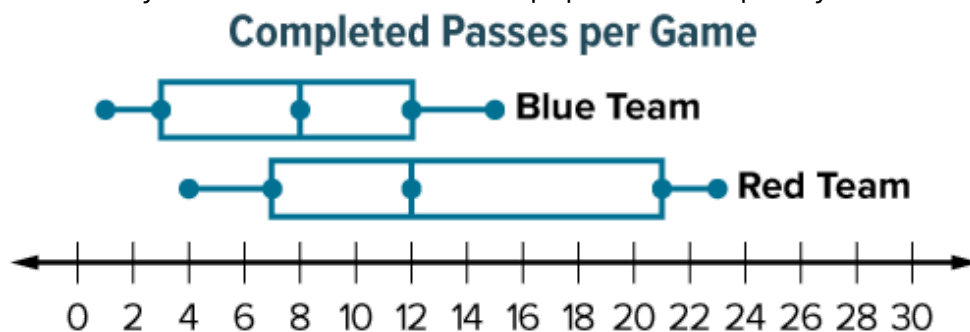## End of Course Test (RM C2)

20) When a number cube is rolled it can land on 1, 2, 3, 4, 5, or 6. Melissa claims that there are 2 × 6 = 12 total possible outcomes when rolling 2 number cubes. Do you agree or disagree with this claim? Justify your answer.

21) Niko wanted to find the most popular field day activities that students at his middle school would like to have at Field Day this spring. He left voting slips and a box to collect them on a table in the cafeteria for students to fill out if they wanted to give their input. Which of the following statements are true? Select all that apply.

☐ Niko's sample is a convenience sample.

☐ Niko's sample is a voluntary response sample.

☐ Niko's sample is biased.

☐ Niko's sample can be used to identify the most popular activities for all middle school students in the school district.

22) The double box plot represents the number of completed passes by two high school football teams. Compare the measures of center and variability of the two populations. Write an inference you can draw about the two populations. Explain your reasoning.

Completed Passes per Game

Blue Team

Red Team

0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30

End of Course Test (RM C2)

23) An art teacher plans to use triangular tiles to create a 6-foot square mosaic. She made a sketch of the design. The sketch is 2 inches on one side and represents 1 square foot of the mosaic. Which of the following statements are true? Select all that apply.

1 in.

1 in.

1 in.   1 in.
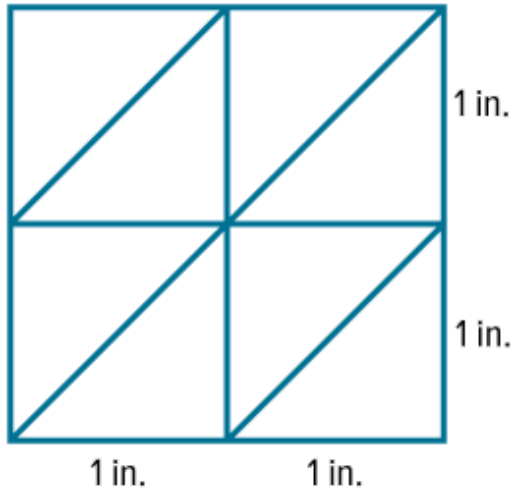
☐ The scale factor of the sketch is 1 inch = 0.5 foot.

☐ The angle measures of each tile are 30°, 60°, and 90°.

☐ Each tile represents an isosceles right triangle.

☐ If there are 283 students signed up to make a tile for the mosaic, there will be 5 more tiles needed to complete the design.

24A) This is a file upload question and cannot be printed.

24B) Part B

Use your graph to correct Jake's prediction and make a more accurate one. Explain how you found your answer.

25) During the manufacturing process, a cooler starts off as a plastic shell that is shaped like a rectangular prism with interior dimensions of 24 inches by 15 inches by 12 inches. Insulation is then installed inside of the cooler on all 6 sides. The manufacturer uses 2-inch thick insulation for its Deep Freeze model and 1.5-inch thick insulation on its Standard model. How much more volume does a Standard model have than the Deep Freeze model?

___ cubic inches