**Math 8**

**Final Exam Review Booklet**

**Name(s): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Learning Goals:**

1. I can find perfect squares and square roots using grids and numbers
2. I can estimate the square root of numbers that are not perfect squares
3. I can demonstrate an understanding of percents greater than 0%
4. I can demonstrate an understanding of ratios and rates
5. I can multiply and divide positive fractions and mixed numbers
6. I can multiply and divide positive and negative integers using both tiles and numbers
7. I can graph and analyse two variable linear relations
8. I can solve for X both pictorially using algebra tiles (or balances) as well as numerically
9. I can use the Pythagorean Theorem to solve right triangle problems
10. I can draw and construct nets for 3D objects
11. I can determine surface area for right rectangular prisms, right triangular prisms, and right cylinders
12. I can determine volume for right prisms and right cylinders
13. I can draw the top, front, and side views of 3D objects of right prisms
14. I can explain the properties of tessellations
15. I can critique ways in which data is graphically and statistically presented
16. I can solve probability of independent events

**Part 1: I can find perfect squares and square roots using grids and numbers**

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| Solve for 32 | Solve √30: |
| Solve for 132 | Solve √21: |

**Part 2: I can estimate the square root of numbers that are not perfect squares**

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| --- | --- |
| Estimate for | Estimate for |
| Estimate for | Estimate for |
| Estimate for | Estimate for |

**Part 3: I can demonstrate an understanding of percents greater than 0%**

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| Write 37% as a fraction in lowest terms | Write as a percent |
| Write 110% as a fraction in lowest terms | Write as a percent |
| What is 120% of 75? | What is 45% of 80? |

**Part 4: I can demonstrate an understanding of ratios and rates**

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| Reduce the following ratio 5 red marbles to 10 blue marbles to 15 yellow marbles: | Nester’s is selling 10 limes for $3. What is the unit price per lime? |
| If the ratio of dogs to horses to cats is 2:3:6, how many dogs are there if there are 9 horses? | Nester’s is selling grapes for $3 for 150 grams. IGA is selling grapes for $4 for 200 grams. Which is a better deal? |
| Mrs. Becker drives to Omak. It takes her 2.5 hours to drive the 214 Km. If she drove at a consistent speed for the entire trip, what was her rate of travel? | Which is the better deal…4 pencils for $3.50 or 10 pencils for $7.99? |

**Part 5: I can multiply and divide positive fractions and mixed numbers**

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**Part 6: I can multiply and divide positive and negative integers using both tiles and numbers**

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| Using tiles, show the answer to the below question:  5 – 10 + 3 +2 | Solve 6(-3 + 5 ) – 2(-12 + 3) |
| Using tiles, show the answer to the below question:  4(-5) | Solve 3(-7 + 5 ) – 3(12 + 3) |
| Using tiles, show the answer to the below question:  3(9 + 3) – 4(8 – 12) | Solve 6(-3 + 5 - 12 + 3) |
| Using tiles, show the answer to the below question:  2(10 + 3) – (5– 1) | Solve (-4 + 7 )(-6 + 3) |

**Part 7: I can graph and analyse two variable linear relations**

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| Fill in the missing parts of the below table of values:  y = 5x - 2   |  |  | | --- | --- | | **X** | **Y** | | -5 |  | | 0 |  | | 3 |  | | Fill in the missing parts of the below table of values:  y = 2x + 2   |  |  | | --- | --- | | **X** | **Y** | | -3 |  | | 1 |  | | 2 |  | |
| What is the equation for the below graph? | Rearrange the below equation into the proper format for equation of a line.  4x + 3y = 12 |
| What is the equation for the below graph? | Graph the below equation: Y = 3x + 1   |  |  | | --- | --- | | **X** | **Y** | | -2 |  | | 1 |  | | 3 |  | |

**Part 8: I can solve for X both pictorially using algebra tiles (or balances) as well as numerically**

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| Using algebra tiles or balances, show how you would solve for X: 2x -1 = 19 | Solve: |
| Using algebra tiles or balances, show how you would solve for X: 4x + 3 = 15 | Solve: |
| Solve: | Solve: |

**Part 9: I can use the Pythagorean Theorem to solve right triangle problems**

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| Solve for the unknown side:  11 cm  X  9 cm | Is this a right triangle? Why or why not?  5 cm  4 cm  2 cm |
| Solve for the unknown side:  8 cm  X  3 cm | Is this a right triangle? Why or why not?  11 cm  8 cm  4 cm |
| Colby is hiking up Cartwright Mountain. James left him a map. He is supposed to hike 5 Km east from his starting spot, and then hike 8 Km north. Colby decided that hiking along the hypotenuse would be faster. Is it? Why or why not? | Is this a right triangle? Why or why not?  5 cm  4 cm  2 cm |

**Part 10: I can draw and construct nets for 3D objects**

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| Draw a net for a right rectangular prism that would have volume of 90 cm3. Include dimensions on your net diagram. | Draw a net for a cylinder that would have volume of 90 cm3. Include dimensions on your net diagram.12.56 cm3 |

**Part 11: I can determine surface area for rectangular prisms, triangular prisms, and cylinders**

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| What is the ***surface area*** of the below shape? | What is the ***surface area*** of the below shape?  8 cm  3 cm |
| What is the ***surface area*** of the below shape? | What is the ***surface area*** of the below shape?  12 cm  6 cm |
| What is the ***surface area*** of the below shape? | What is the ***surface area*** of the below shape? |

**Part 12: I can determine volume for prisms and cylinders**

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| What is the ***volume*** of the below shape? | What is the ***volume*** of the below shape? |
| What is the ***volume*** of the below shape? | What is the ***volume*** of the below shape? |
| What is the ***volume*** of the below shape?  D = 12 cm  8 cm | What is the ***volume*** of the below shape?  r = 4 cm  3 cm |

**Part 13: I can draw the top, front, and side views of 3D objects of prisms**

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| Draw the top view of a cylinder | Draw the top view of a rectangular prim that has an area of 20 cm2 |

**Part 14: I can explain the properties of tessellations**

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| Describe the steps to make a tessellation. Draw an example of one. |

**Part 15: I can critique ways in which data is graphically and statistically presented**

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| You have collected data on the on middle school student’s favourite courses.  You want to show it in percent of students who like each class . What is the best way to show this  in graph format? Why?   1. pie chart 2. line graph 3. bar graph 4. data table   Because: **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** |
| Why do you use a graph? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  What information should be in a graph? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

**Part 16: I can solve probability of independent events**

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| In a standard deck of cards, which is the probability that when you take a card, you will get a heart? | You have two six sided dice. When you roll both independently, what is the probability that you will get a 4 and a 5? |
| A coin is tossed and a single 6-sided die is rolled. Find the probability of landing on the head side of the coin and rolling a 3 on the die. | A card is chosen at random from a deck of 52 cards. It is then replaced and a second card is chosen. What is the probability of choosing a jack and then an eight? |
| A jar contains 6 red balls, 3 green balls, 5 white balls, and 7 yellow balls. Two balls are chosen from the jar, with replacement. What is the probability that both balls chosen are green? | **A nationwide survey showed that 65% of all children in the United States dislike eating vegetables. If 4 children are chosen at random, what is the probability that all 4 dislike eating vegetables? (Round your answer to the nearest percent.)** |