

Final Exam Review Questions

Unit 1: Integers

- Adding, subtracting, multiplying, and dividing integers
- Order of operations

1. $3 + (-5)$
2. $(-5) - (-3)$
3. $3 + (-5) - (-8)$
4. $4 + 3 \times 2$
5. $(-5) - (-8) \div 4$
6. $\frac{3 + (6 - 3) \times (-2)}{4 - (15 \div (-3))}$

Unit 2a: Ratios and Rates

- Proportional reasoning
 - Unit Rates
 - Scale Drawing
7. Complete the following ratio:
 $3 : 5 : 9 = 9 : x : y$
 8. Complete the following ratio: 12 is to 15 as 9 is to x.
 9. Eighteen oranges cost \$45.00. What is the **unit rate** for oranges?
 10. A cookie recipe calls for 2 cups of flour and 3 cups of milk. If you only have 1.5 cups of flour, how much milk should you add?
 11. A car drives 450 km in 3 hours. What is the speed (rate of movement) of the car?
 12. A blueprint for an airplane has a scale of 1:200. On paper, the airplane is 30 cm long. How long is the airplane in real life?

Unit 2b: Fractions

- Adding, Subtracting, Multiplying, and Dividing Fractions
 - Mixed Numbers
 - Probability of independent events
13. $\frac{2}{3} + \frac{5}{3}$
 14. $1\frac{1}{2} - 4\frac{3}{5}$
 15. $\frac{2}{3} \times 9$
 16. $2\frac{1}{5} \div 1\frac{1}{2}$
 17. If you roll a die and then flip a coin, what is the probability of getting a "4" followed by a "tails"?

Unit 3: Percents

- Finding a certain percent of a number
- Finding what percentage a specific fraction is equivalent to
- Finding the whole if you know the part and the percent (e.g. finding the original price before tax or discount)
- Finding the percent change (e.g. an increase or decrease in population)

18. What is 45% of 90?

19. What is 120% of 60?

20. What percent is 30 out of 36?

21. What percent is 9 out of 6?

22. Twenty is 40% of what number?

23. After going on sale at 20% off, a shirt costs \$24.00. What did it cost originally?

24. The population of a town is 1300 people. If this increases by 4%, what is the new population?

Unit 4: Squares, Roots, and the Pythagorean Theorem

- Scientific Notation
- Squaring a number
- Estimating the square root of a number
- Using the Pythagorean theorem to find the unknown side of right triangles

25. Write this number in scientific notation:

4 315 000

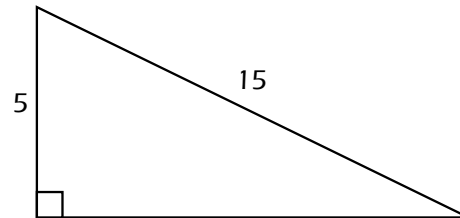
26. Write this number in normal (non-scientific)

notation: 3.51×10^{-4}

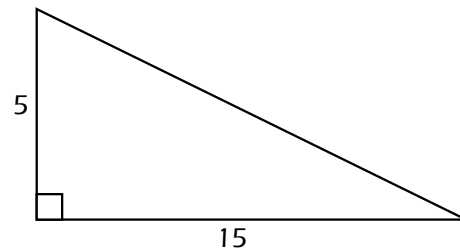
27. What is the square of 3.5?

28. Estimate the square root of 55

29. Find the unknown side in this triangle:



30. Find the unknown side in this triangle:



Unit 5: Solving Equations

- Using inverse operations to isolate an unknown variable
- Solve equations using groups

31. Solve: $3x + 8 = 29$

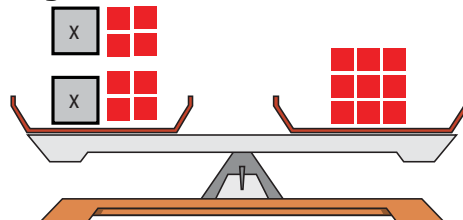
32. Solve: $3x + 2 = 5x - 8$

33. Solve: $2(3x - 5) = -22$

34. Solve: $2(x - 3) + 2 = 5(x - 1)$

- Draw and interpret pictures to represent equations

35. Write the equation represented by this diagram and solve:



36. Draw a diagram to represent the equation $2(x - 5) = 6$

Unit 6: Graphing and Linear Relations

- Represent a situation with a linear relation
- Plot linear relations on a coordinate plane

37. Apples cost \$0.45 per pound. Represent the cost of apples using a linear relation. Plot this relation on a coordinate plane.

38. A pizza costs \$10 plus \$0.50 per topping. Represent the cost of a pizza as a linear relation based on the number of toppings you buy. Plot this relation on a coordinate plane.

39. Plot the equation $y = -x - 5$ on a coordinate plane by creating a table of values.

- Create tables of values from linear relations
- Determine the linear relation that produces a given table of values

40. Plot the equation $y = \frac{3}{5}x - 2$ on a coordinate plane **without** creating a table of values.

41. What is the linear relation given in this table of values:

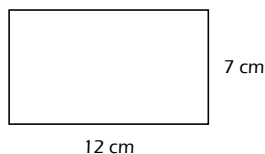
x	y
-4	3
0	-1
2	-3
8	-9

Unit 7: Area and Perimeter

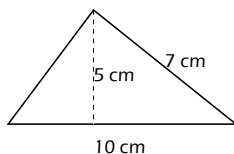
- Finding the area and perimeter of regular shapes including parallelograms, circles, and triangles
- Finding the area and perimeter of composite shapes composed of parallelograms, circles, and triangles

42. Find the area and perimeter of each of the following:

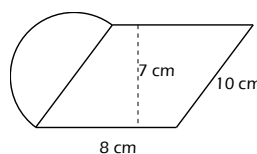
a)



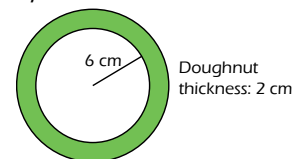
b)



c)



d)

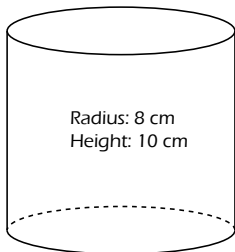


Unit 8: Surface Area, Volume, and Views of shapes

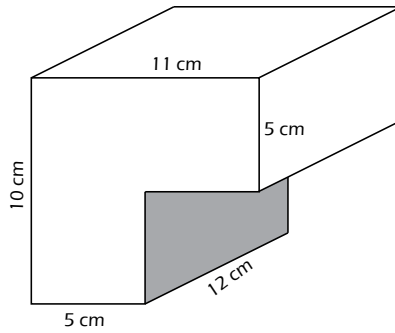
- Find the surface area and volume of right prisms and cylinders
- Find the surface area and volume of composite 3D shapes composed of right prisms and cylinders
- Draw orthogonal views of 3d shapes (i.e. side, top, front)

43. Find the surface area and volume of each of the following:

a)



b)



44. Draw the front, side, and top views of the following shape:

