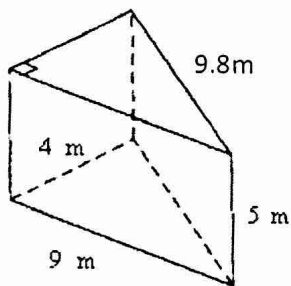


Intermediate I – Final Exam Review Packet

Answer the following questions. As you go through the packet, if you needed to use a formula, write it on your note card so you can use it during the final. Also write down any other formulas from relating to the one you used in case the final asks a different type of question from that same section. Be resourceful!

1. Find the surface area for the prism. (The final exam may want you to find the volume of a prism as well!)



$$\frac{9 \cdot 4}{2} = \frac{36}{2} = 18 \text{ m}^2$$

$$9 \cdot 9 = 81 \text{ m}^2$$

$$9 \cdot 8 \cdot 5 = 360 \text{ m}^2$$

$$4 \cdot 9 = 36 \text{ m}^2$$

$$\begin{array}{r} 18 \\ 81 \\ 360 \\ + 36 \\ \hline 495 \end{array}$$

2. Caroline wants to give 8 equal sized packets of flower seeds to her friends. She has  $\frac{1}{2}$  pound of flower seeds. How much will each packet of seeds weigh?

$$\frac{1}{2} \div 8 = \frac{1}{2} \times \frac{1}{8} = \frac{1}{16} \text{ lb}$$

3. A bag contains 9 number tiles that are numbered 1 – 9. If you select one tile from the bag, then replace it so you can choose another tile, what is the probability you will select a 3 and a 4?

$$\frac{1}{9} \cdot \frac{1}{9} = \frac{1}{81}$$

How would this question change if you did NOT replace the tile before selecting a second tile from the bag?

$$\frac{1}{9} \cdot \frac{1}{8} = \frac{1}{72}$$

4. Thirty six cookies calls for 28 ounces of chocolate chips. If you wanted to make only 24 cookies, how many ounces of chocolate chips would you need?

~~$$\frac{28}{36} = \frac{x}{24}$$~~

$$\frac{36x}{36} = \frac{672}{36}$$

$$18\frac{2}{3} \text{ oz}$$

$$18.\bar{6} \text{ oz}$$

5. An art store usually sells a fixed number of art canvasses every day. If the trend continues, how many canvasses would remain on day 7?

| Day | No. of canvasses remaining |
|-----|----------------------------|
| 1   | 56                         |
| 2   | 48                         |
| 3   | 40                         |
| 4   | 32                         |
| 5   | 24                         |
| 6   | 16                         |
| 7   | 8                          |

8 canvasses

6. Evaluate the expression below if  $x = 7, y = -6,$  and  $z = 3.$

a.  $x + y + z - 4$

$$1 + (-6) + (3) + 4 \quad 1 + (-1) = 0$$

b.  $\frac{2x-y}{5} + z$

$$\frac{2(7) + (-6)}{5} + 3 = \frac{14 + 6}{5} + 3 = \frac{20}{5} + 3 = 4 + 3 = 7$$

7. Farmer Brown's garden was 100 square feet. He expanded it to be 150 square feet. Find the percent of change and tell whether it was a percent increase or decrease.

$$\frac{150 - 100}{100} = \frac{50}{100} = 50\% \text{ increase}$$

8. Angela found a shirt that was originally \$25 marked down to \$20. Find the percent of change and tell whether it was a percent increase or decrease.

$$\frac{\$25 - \$20}{\$25} = \frac{5}{25} = 0.2 = 20\% \text{ decrease}$$

9. Write each fraction or mixed number as a decimal. Then tell me whether it is terminating or repeating.

a.  $-1\frac{1}{2}$

$-1.5$

terminating

b.  $2\frac{2}{3}$

$2.\overline{6}$   
repeating

c.  $-\frac{4}{12}$

$-0.\overline{3}$

repeating

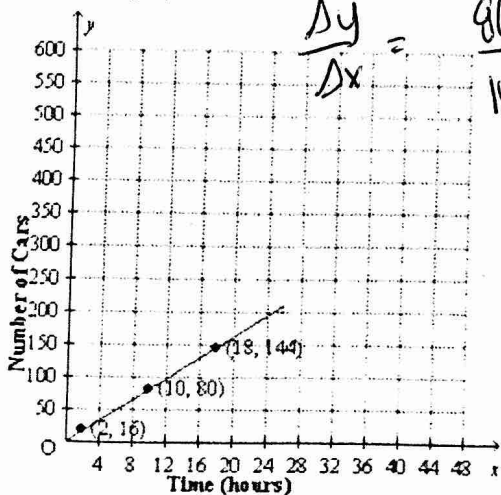
d.  $\frac{18}{3}$

6

terminating

10. Find the constant rate of change.

a. from a graph:



$$\frac{\Delta y}{\Delta x} = \frac{80 - 16}{10 - 2} = \frac{64}{8}$$

8 cars per hour

b. from a table:

| Hours | Amount Earned |
|-------|---------------|
| 2     | 10            |
| 4     | 20            |
| 6     | 30            |
| 8     | 40            |

$$\frac{10}{2}$$

\$5 per hour

11. Given a circle whose radius is 5 meters, find the circumference AND the area.

$$C = 2\pi r \quad 2(3.14)(5) = 31.4 \text{ m} \quad A = \pi r^2 \quad (3.14)(5^2) = 78.5 \text{ m}^2$$

12. Given a circle whose diameter is 12 inches, find the circumference AND the area.

$$d = 12 \text{ in} \quad C = \pi d \quad (3.14)(12) = 37.68 \text{ in} \quad (37.68 \text{ in})$$

$$r = 6 \text{ in}$$

13. Write an expression to simplify  $4(x+2)$ .

$$4 \cdot x + 4 \cdot 2$$

14. Write an expression to simplify  $4x+8$

$$4(x+2)$$

$$-1x + 4 \quad \text{(-}x+4\text{)}$$

15. Identify the following angles as acute, right, obtuse, or straight.

|                        |  |               |  |
|------------------------|--|---------------|--|
| <p>a.</p> <p>right</p> | <p>b. <math>89^\circ</math></p> <p>acute</p> | <p>obtuse</p> | <p>c. <math>180^\circ</math></p> <p>straight</p> |
|------------------------|--|---------------|--|

16. Solve  $\frac{3}{8}(n+10) = 6$

$$\frac{3}{8} \cdot n + \frac{3}{8}(10) = 6$$

$$\frac{3}{8}n + \frac{30}{8} = 6$$

$$\frac{3}{8}n + \frac{30}{8} = 6$$

$$- \frac{30}{8}$$

$$\frac{3}{8}n = \frac{18}{8}$$

$$\frac{8}{3} \cdot \frac{3}{8}n = \frac{8}{3} \cdot \frac{18}{8}$$

$$n = 6$$

17. Solve  $-4(x+1) = 24$

$$-4x + 4 = 24$$

$$-4x = 20$$

$$x = -5$$

18. If a spinner with eight equal sections (labeled 1-8) is spun, what is the probability of the following:

a.  $P(\text{odd}) = \frac{1}{2}$

b.  $P(1 \text{ or } 4) = \frac{2}{8} = \frac{1}{4}$

c.  $P(\text{even}) = \frac{1}{2}$

19. Factor the following expressions.

a.  $40x + 24$

$$40x = 2 \cdot 2 \cdot 2 \cdot 5 \cdot x$$

$$24 = 2 \cdot 2 \cdot 2 \cdot 3$$

GCF = 8

$$8(5x + 3)$$

b.  $30y - 10$

$$30 = 2 \cdot 3 \cdot 5$$

$$10 = 2 \cdot 5$$

GCF = 10

$$10(3y - 1)$$

c.  $24xy - 32y$

$$24xy = 2 \cdot 2 \cdot 2 \cdot 3 \cdot x \cdot y$$

$$32y = 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot y$$

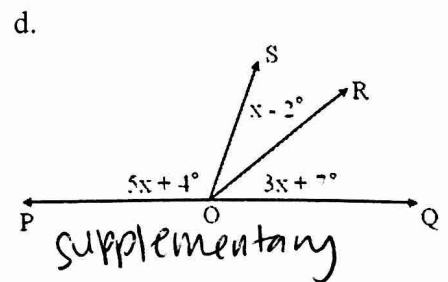
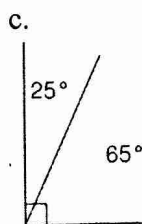
GCF = 8y

$$8y(3x - 4)$$

20. Identify the following angles as complementary, supplementary, both, or neither.

a.  $45^\circ$  and  $155^\circ$

Neither



21. Solve for the following:

a.

$$x + x + 30 = 90$$

$$2x + 30 = 90$$

$$-30 \quad -30$$

$$2x = 60$$

$$\frac{2x}{2} = \frac{60}{2}$$

$$x = 30$$

b.

$$5x + 4 + x - 2 + 3x + 7 = 180$$

$$9x + 9 = 180$$

$$-9 \quad -9$$

$$9x = 171$$

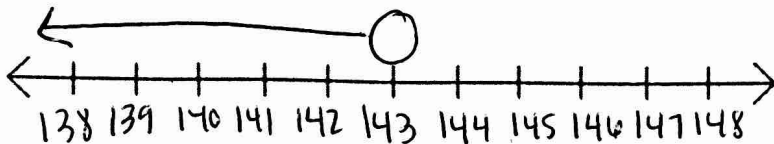
$$\frac{9x}{9} = \frac{171}{9}$$

$$x = 19$$

22. There are four positions to fill for student council, and 8 people running for office. How many different ways can the candidates be arranged?

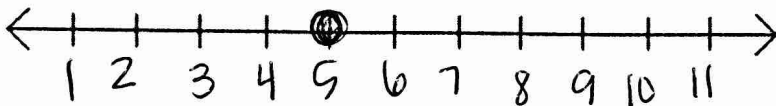
$$8 \cdot 7 \cdot 6 \cdot 5 = 1680$$

23. Solve  $\frac{s}{-11} > 13$ . Then graph the solution on a number line. (Remember to use open or closed dots!)



$$\begin{aligned} (-11) \frac{s}{-11} &> 13(-11) \\ s &< 143 \end{aligned}$$

24. Solve  $-2 + 4x = 18$ . Then graph the solution on a number line.



$$\begin{aligned} -2 + 4x &= 18 \\ +2 & \quad +2 \\ \hline 4x &= 20 \\ \frac{4x}{4} &= \frac{20}{4} \\ x &= 5 \end{aligned}$$

25. Multiply, divide, add, or subtract.

a.  $(-7)(-1)(2)$

$$7(2) = 14$$

b.  $50 \div -25$

$$-2$$

c.  $-10 + 10$

$$-20$$

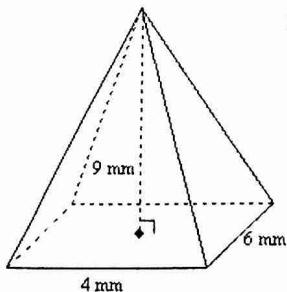
d.  $4 - 15$

$$-11$$

26. Find the volume of the pyramid below.

Round to the nearest tenth.

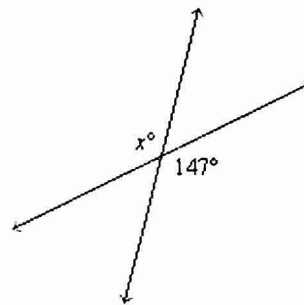
(Think: what other formulas might you need to know?)



$$\frac{(4 \cdot 6) \cdot 9}{3}$$

$$72 \text{ mm}^3$$

27. Find the value of x.



$$x = 147$$

28. Use the chart to answer the following questions.

| Movie          | Percent |
|----------------|---------|
| Puppy Love     | 51%     |
| Cops & Robbers | 35%     |
| That's Comedy  | 14%     |

a. If there are 1,750 people attending a movie theater, how many will see Cops and Robbers?

$$(1,750)(0.35) = 612.5$$

b. If there are 2,000 people attending the theater, how many will see That's Comedy?

$$(2,000)(0.14) = 280$$

29. Jerry went shopping and spent \$495. After shopping, he had at least \$85 left. Write an inequality to find out how much Jerry had before he went shopping.

$$\begin{aligned} x - 495 &\geq 85 \\ +495 & \quad +495 \\ \hline x &\geq 580 \end{aligned}$$

~~$$\begin{aligned} 495 - x &\geq 85 & -x &\geq \\ -495 & \quad -495 & & \end{aligned}$$~~

30. A die is rolled as many times as possible for 2 minutes. The results are recorded in the table below.

| Rolled a 1 | Rolled a 2 | Rolled a 3 | Rolled a 4 | Rolled a 5 | Rolled a 6 |
|------------|------------|------------|------------|------------|------------|
| 10         | 7          | 15         | 12         | 12         | 9          |

a. What is the probability (in this case) that they rolled a 2?

b. Compare the experimental probability with the theoretical probability.

Experimental =  $(\frac{7}{65})$  Theoretical =  $\frac{1}{6}$   $\frac{7}{65} < \frac{1}{6}$

31. If I spent \$316 on 4 DVD players, how much did I spend per unit?

$$\frac{\$316}{4 \text{ DVD players}} \div 4 = \frac{\$79}{\text{DVD player}}$$

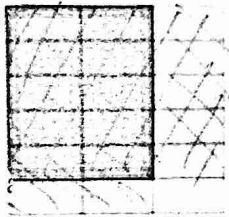
32. George drove for 300 miles and it took him 4.5 hours. How fast was he driving if he drove at a constant rate?

$$\frac{300 \text{ miles}}{4.5 \text{ hrs}} \div 4.5 = \frac{66.6 \text{ mi}}{1 \text{ hr}}$$

33. What is the probability of tossing a coin and getting tails? What is the probability of tossing 4 coins and getting tails on all four?

$\frac{1}{2}$ ;  $\frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{2} = \frac{1}{16}$

34. Write a number sentence represented by the model below.



$$\frac{2}{3} \cdot \frac{5}{9} = \frac{10}{27} \div 2 = \frac{5}{9}$$

35. You roll 2 dice and toss 3 coins. What is the probability you will get an even number on both dice and heads on all three coins?

$$\frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{2} = \frac{1}{32}$$

36. You have three shirts, four pair of pants, and two pair of shoes. How many different outfits can you make?

$$3 \cdot 4 \cdot 2 = 24$$

37.  $(2x + 4) - (3x + 7)$

$$2x - 3x = -x$$

$$-4 + 7 = 3$$

$$\boxed{-x + 3}$$

38. Solve the equation  $5f - 12 = 18$ . Check your solution by plugging it back into the equation. Show that your solution works!

$$\begin{array}{r} 5f - 12 = 18 \\ +12 \quad +12 \\ \hline 5f = 30 \\ \frac{5f}{5} = \frac{30}{5} \\ f = 6 \end{array}$$

$$\begin{array}{l} 5(6) - 12 = 18 \\ 30 - 12 = 18 \\ 18 = 18 \checkmark \end{array}$$

39. Solve  $\frac{2}{1} \cdot \frac{1}{2}x = 3 \cdot \frac{2}{1}$

$$x = 6$$

40. Solve  $6(a + 4) = 72$

$$\begin{array}{l} 6a + 6 \cdot 4 = 72 \\ 6a + 24 = 72 \\ -24 \quad -24 \\ \hline 6a = 48 \end{array}$$

$$\frac{6a = 48}{6} = \frac{48}{6}$$

$$a = 8$$

41. Order the following numbers from least to greatest:

a.  $\{\frac{4}{9}, .44, \frac{4}{10}, 45\%\}$

$$\begin{array}{ccc} \downarrow & \downarrow & \downarrow \\ 0.4 & 0.4 & 0.45 \end{array}$$

$$\left\{ \frac{4}{10}, 0.44, \frac{4}{9}, 45\% \right\}$$

b.  $\{-2.75, -2\frac{2}{3}, -2\frac{6}{10}, -2.751\}$

$$\begin{array}{cc} \downarrow & \downarrow \\ -2.6 & -2.6 \end{array}$$

$$\left\{ -2.751, -2.75, -2\frac{2}{3}, -2\frac{6}{10} \right\}$$

42. Multiply or divide. Write in simplest form.

a.  $\frac{5}{9} \times \frac{1}{2} = \frac{5}{18}$

b.  $2\frac{1}{2} \div 3\frac{3}{4}$

$2\frac{1}{2} = \frac{5}{2} = \frac{5 \times 2}{2 \times 2} = \frac{5 \times 2}{4}$

$\frac{5}{2} = \frac{15}{4}$

$\frac{15}{12} \times \frac{42}{193} = \frac{2}{3}$

43. Solve each proportion.

a.  $\frac{m}{13} = \frac{39}{63}$   $\frac{495}{65} = \frac{65m}{65}$   $(m=7)$

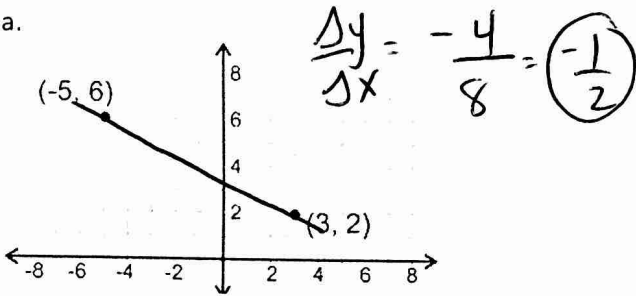
b.  $\frac{2}{2} = \frac{x}{330}$

$\frac{660}{3} = \frac{x}{1}$

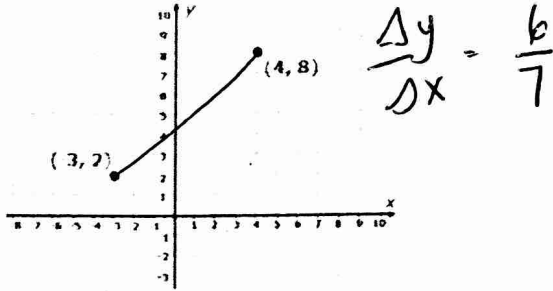
$x = 220$

44. Find the slope between the two points:

a.



b.



45. A bag contains 3 white marbles, 5 blue marbles, 7 yellow marbles, and 5 purple marbles. What is the probability of selecting a blue marble?

$\frac{5}{20} = \left(\frac{1}{4}\right)$

46. What would a vertical cross-section look like for a sphere? A rectangular prism?



47. What is the scale factor if the scale is 1 inch = 5 feet?  
1 : 60  $\times 12$

What if the scale were  $\frac{1}{2}$  inch = 2 feet?

$2 \cdot \frac{1}{2} = 24 \cdot 2$   
 $1 = 48$

48. You deposit \$2,500 in a bank account with 2.5% interest for 6 years. How much interest will you receive?

$(2,500)(0.025)(6) = \$375$

49. Tommy's soccer team currently has 12 players. The following season, the team increases by 200%. How many players are on the team now?

$12(2.00) = 24$

$12 + 24 = 36 \text{ players}$

50. Name the property is illustrated below.

a.  $-7 \times 1 = -7$

identity (x)

b.  $-4 + 4 = 0$

additive inverse

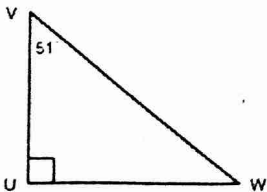
c.  $5 + 0 = 5$

identity (t)

d.  $-8 \times \frac{1}{8} = 1$

multiplicative inverse

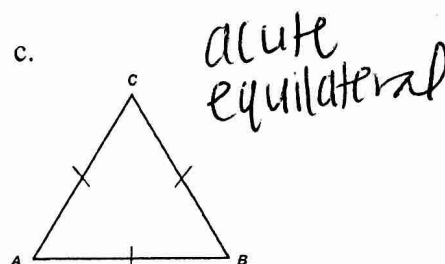
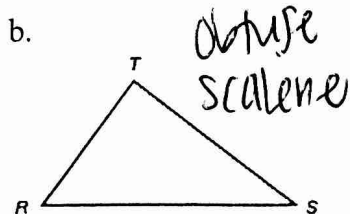
51. Find the missing angle in the triangle.



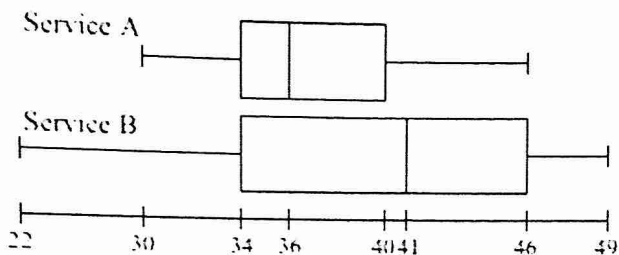
$180 - 90 - 51 = 39$

$39^\circ$

52. Classify the following triangles by their angles AND their sides.



53. Compare the two box plots showing Service A and Service B and the number of customers per week.

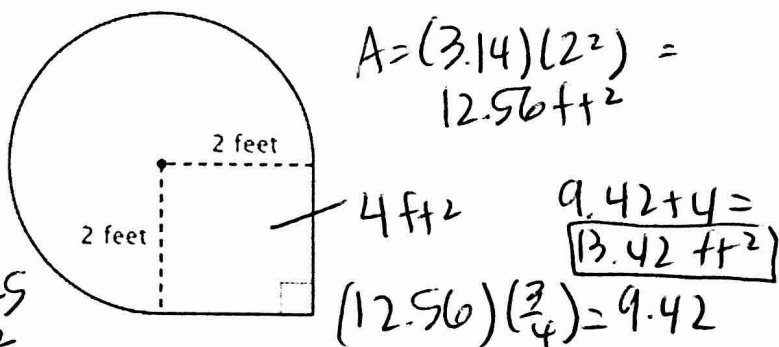
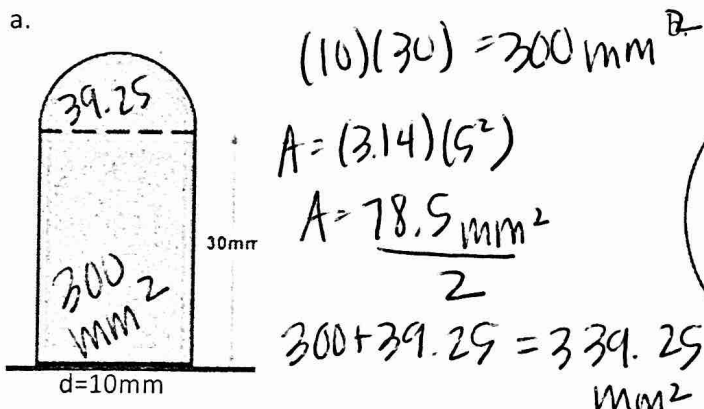


a. Which service had the lowest amount of customers? **B**

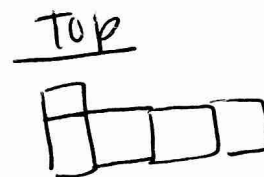
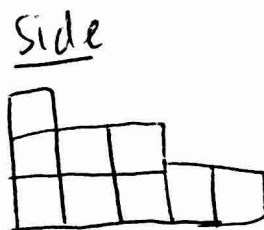
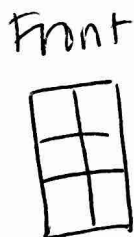
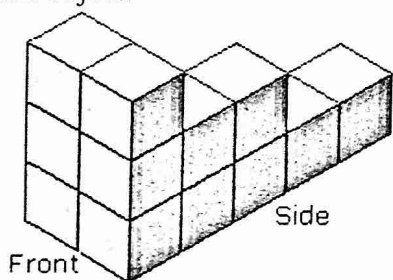
b. Which service had the widest spread? **B**

c. Which service, on average, had more customers? **B**

54. Find the area of the composite figures.



55. Draw the front, top, and side view of the following image. Then find the volume and the surface area of this object.



56. Label each set of events as dependent or independent.

a. One coin is flipped, then another coin is flipped. **independent**

b. One coin is flipped twice. **independent**

c. A bag of 10 marbles where one is chosen and replaced before another one is chosen. **independent**

d. A bag of 10 marbles where one is chosen and NOT replaced before another one is chosen. **dependent**

e. You choose a letter out of the Scrabble bag, then another letter, then a third for your game tray. **dependent**