Summer Math Packet

For Students Entering Honors Math 6

Dear student,

Last year, you learned and polished an assortment of mathematical skills. Going long periods of time without practicing these skills leads to deterioration and regression, so it is important to continue practicing over the summer in order to build your mathematical foundation. I recommend completing one or two pages a week throughout the summer to keep sharp.

This packet is due the day that you return for school and will be counted as a large chunk of the first trimester's homework credit. **Show your work to earn credit** – attach any extra work if you did any that does not fit in the packet itself. No calculators! Please contact Mr. Holton if you have any questions. Have a great summer, but don't forget what you've learned!

All Fraction Operations

Date:

Evaluate.

1. $\frac{2}{3}+\frac{1}{12}$

2. $1\frac{7}{10}-\frac{5}{6}$

3. $2\frac{4}{9}+1\frac{5}{12}$

4. $\frac{8}{21}\cdot 3\frac{3}{4}$

5. $2\frac{2}{15}\cdot 1\frac{7}{18}$

6. $\frac{9}{10}\div\frac{6}{14}$

7. $\left(\frac{17}{18}-\frac{1}{2}\right)\div 10$

8. $1\frac{3}{4}-\frac{9}{20}\cdot\frac{5}{24}$

Applications with Fraction Operations

Date:

1. Each walk around the block is $1\frac{7}{15}$ miles. If Valencia walked around the block $4\frac{7}{12}$ times, how far did she walk?

2. Kate watched $\frac{3}{20}$ of a movie on Friday, then $\frac{4}{15}$ more of the movie on Saturday. What fraction of the movie does she have left to watch?

3. A jug of laundry soap contains $40\frac{5}{6}$ ounces. If Alex uses $1\frac{7}{9}$ ounces of laundry, how many loads can he wash?

Comparing Fractions & Decimals

Date:

Compare the numbers using a <, >, or = symbol.

1. $1\frac{3}{4}$ ◯ 1.295

2. $\frac{19}{8}$ ◯ $2.\overline{3}$

3. 11.89 ◯ $11\frac{8}{9}$

4. 5.08 ◯ $5\frac{3}{20}$

5. Chen, Elisa, and Levi finished in the top three in a 5K run. The table to the left gives their run times in minutes. List them in the order that they finished from first to third.

Chen	$29\frac{9}{40}$
Elisa	29.2
Levi	$29\frac{4}{15}$

Proportional Relationships: Missing Values

Date:

The quantities in each table represent a proportional relationship. Find each missing value.

1.

Creamer (oz)	2	
Coffee (oz)	8	50

2.

Weeks	4	14
Inches	6	

3.

Gallons of Gas		20
Cost ($)	18	48

4. An elevator traveled 50 feet in 4 seconds. At this rate, how far would the elevator travel in 30 seconds?

Ratios

Date:

Write each ratio in simplest form.

1. 36 stars to 54 hearts

2. 92 blueberries to 48 strawberries

3. 15 teachers to 87 students

4. 180 calories to 24 grams of fat

5. What is the ratio of vowels to the total number of letters in the word **ACCOMPLISHMENT?**

6. Marc is playing a card game. He has 7 hearts, 2 diamonds, 4 spades, and 8 clubs in his hand. What is the ratio of red cards to the total cards in his hand?

Equivalent Ratios

Date:

1. Using the shapes to the left, write three equivalent ratios for the number of stars to the number of moons.

Fill in a box that with a value that makes the ratios equivalent.

2. $\frac{9}{4}$ and $\frac{\square}{24}$

3. $\frac{24}{56}$ and $\frac{3}{\square}$

4. $\frac{5}{\square}$ and $\frac{15}{72}$

5. A 12-ounce can of tea contains 210 calories. If Katy drank 4 ounces, how many calories did she consume?

6. Rick went over a bridge 5 times last week and paid $9 in tolls. If he spends $63 in tolls for the month, how many times did he go over the bridge?

Integers

Date:

Write an integer to model each situation.

1. an excess of 60 pounds _____
2. 12 degrees below the average temperature _____
3. an 8-mile gain _____
4. driving 5 miles under the speed limit _____
5. using a $25 gift card towards a purchase _____
6. a $3 delivery fee _____

Fill in each circle with a < or > symbol.

7. -20 ◯ 3 **8.** -32 ◯ -35 **9.** -4 ◯ -18

Find the absolute value of each integer.

10. $|9|$ **11.** $|-24|$ **12.** $|0|$

Negative Rational Numbers

Date:

Find each absolute value.

1. $|4.17|$ **2.** $\left|-\frac{4}{9}\right|$ **3.** $|-25.68|$ **4.** $\left|2\frac{7}{24}\right|$

Compare the numbers using a <, >, or = symbol.

5. $-\frac{1}{4}$ ◯ $-\frac{2}{9}$ **6.** -4.3 ◯ $-4\frac{7}{18}$ **7.** -1.5 ◯ $-1\frac{5}{6}$

8. Order from least to greatest: $-\frac{9}{10}, -0.92, -\frac{15}{16}, -0.907$

Adding Integers

Date:

Find each sum.

1. $-24+(-3)$

2. $-5+(-14)$

3. $-17+10$

4. $13+(-7)$

5. $23+(-35)$

6. $-16+(-27)$

Fill in each circle with a <, >, or = symbol.

7. $-4+(-4)$ ◯ $-6+3$

8. $-7+(-1)$ ◯ $18+(-12)$

Subtracting Integers

Date:

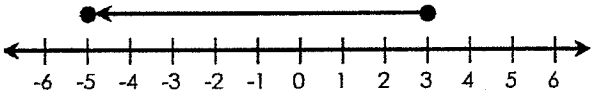
Rewrite each expression as a sum.

1. $10-(-9)$

2. $-5-18$

3. $-2-(-7)$

4. Write **(a)** a difference expression and **(b)** a sum expression to represent the problem on the number line below.



Find each difference.

5. $2-11$

6. $-6-(-17)$

7. $-8-14$

8. $25-16$

9. $-10-10$

10. $13-(-2)$

Multiplying Integers

Date:

Find each product.

1. $5 \cdot (-3)$

2. $-4 \cdot (-9)$

3. $-1 \cdot 17$

4. $-6(-8)$

5. $-7 \cdot 4 \cdot (-2)$

6 $-2 \cdot (-5) \cdot 6$

Evaluate.

7. $(-12)^2$

8. $(-5)^3$

9. -8^2

10. The temperature in an oven decreased by 9 degrees every minute. Find the change in the temperature of the oven after 24 minutes.

Dividing Integers

Date:

Find each quotient, if possible.

1. $\frac{21}{-3}$

2. $-60 \div (-6)$

3. $-18 \div 6$

4. $\frac{8}{4}$

5. $\frac{-36}{3}$

6 $30 \div (-5)$

7. $\frac{-13}{-1}$

8. $-4 \div 0$

9. $\frac{0}{9}$

10. A car traveling at 75 miles per hour slowed down to 27 miles per hour in 8 seconds. Find the average change in the speed of the car.

Combining Like Terms

Date:

1. Identify the variable terms, coefficients, and constant terms of the expression below.

   $11+8w+2w+5+w$

Simplify each expression.

2. $4p+11p$

3. $9x+3+5x$

4. $a+16+7a-3$

5. $16k-1-6k+2k$

6. $\frac{3}{10}y+10-2+\frac{1}{5}y$

7. $25+3c-17+8d-c+d$

The Distributive Property

Date:

Simplify each expression using the distributive property.

1. $8(2+13)$

2. $3(17-8)$

3. $5(x+3)$

4. $7(k-8)$

5. $4(2w+9)$

6. $12(1-k)$

7. $6(3r+8s)$

8. $\frac{2}{3}\left(\frac{3}{4}m+12\right)$

Order of Operations

Date:

Simplify each expression.

1. $40 - 12 \div (2 \cdot 3)$

2. $5^2 + (1 + 3^3) \div 4$

3. $\dfrac{(12 - 2 \cdot 3)^2}{2 \cdot 3 - 2}$

4. $\dfrac{1 + 4 \cdot 2^4}{10^2 \div 20}$

5. Add a single set of parentheses to the expression $\mathbf{9^2 - 7 + 1^2 \div 16 \cdot 2}$ so that it simplifies to 73. Prove your answer by simplifying the expression.

Evaluating Expressions

Date:

Evaluate each expression if $w = 11$, $x = 4$, $y = 16$, and $z = 7$.

1. $8w - 5z$

2. $3y + (x^2 - 1)$

3. $w(z - x)^2$

4. $\dfrac{1}{4}(w - 3) + xy$

5. $6z - \dfrac{2y}{x} + w$

6. $\dfrac{3}{8}y + \dfrac{1}{2}(z + w)$

Simplifying Expressions

Date:

Simplify each expression completely.

1. $4(k+3)-1$

2. $7(2w-5)+3w$

3. $13+5(3p-1)$

4. $\frac{1}{2}(18m+4)-2m+16$

5. $17a+2(1-a)-3a$

6. $4(4x+y)+9(y-x)$

Translating Expressions
(with negative integers)

Date:

Translate the following expressions:

1. "9 less than a number " _____
2. "the product of a number and -13" _____
3. "the sum of a number and 60" _____
4. "the quotient of -48 and a number" _____
5. "the difference of twice a number and -27" _____
6. "a number squared subtracted from 40" _____

Write each expression in words.

7. $\frac{2x}{-5}$

8. $\frac{1}{3}x-28$

Translating One-Step Equations

Date:

Translate each equation, then solve.

1. "14 less than a number results in 3."

2. "The quotient of a number and 9 is 5."

3. "26 equals the sum of a number and 7."

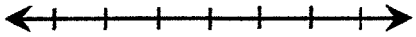
4. "The product of a number and 3 is 45."

Translating One-Step Inequalities

Date:

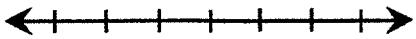
Translate each inequality. Then solve and graph the solution.

1. "The product of a number and 5 is greater than 15."

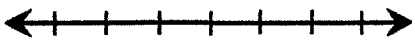


2. "13 is less than or equal to the sum of a number and 6."

3. "4 subtracted from a number is at least 18."



4. "The quotient of a number and 4 has a maximum value of 7."



Translating One-Step Equations

Date:

Translate each equation, then solve.

1. "14 less than a number results in 3."

2. "The quotient of a number and 9 is 5."

3. "26 equals the sum of a number and 7."

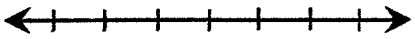
4. "The product of a number and 3 is 45."

Translating One-Step Inequalities

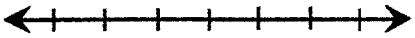
Date:

Translate each inequality. Then solve and graph the solution.

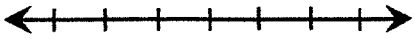
1. "The product of a number and 5 is greater than 15."



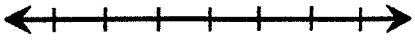
2. "13 is less than or equal to the sum of a number and 6."



3. "4 subtracted from a number is at least 18."



4. "The quotient of a number and 4 has a maximum value of 7."



One-Step Equations (All Operations)

Date:

Solve each equation. Check your solution.

1. $x - 7 = 9$

2. $4 = \frac{v}{10}$

3. $16 = k - 3$

4. $12 + m = 20$

5. $7p = 28$

6. $j - 9 = 9$

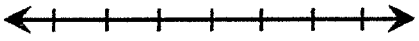
One-Step Inequalities (All Operations)

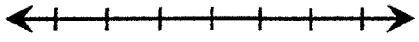
Date:

Solve and graph the solution to each inequality.

1. $x + 4 \leq 9$

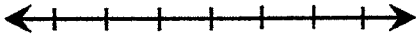
2. $\frac{p}{7} < 6$

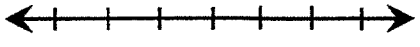




3. $n - 11 > 3$

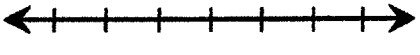
4. $5a \geq 40$

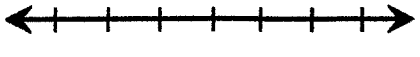




5. $\frac{k}{9} < 2$

6. $11 \leq 5 + w$

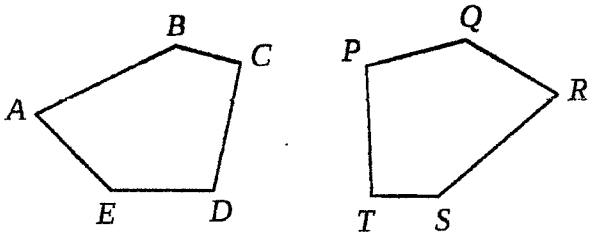




Polygons & Congruency

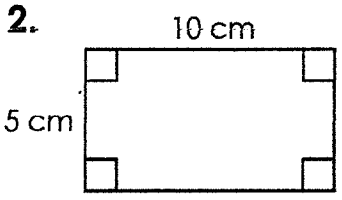
Date:

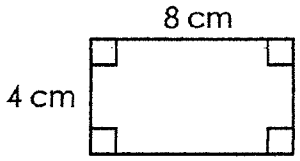
1. If the polygons below are congruent, list all congruent sides and angles.



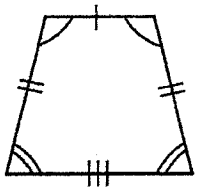
Determine if the polygons are congruent.

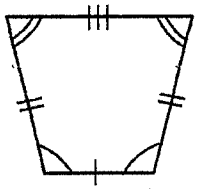
2.



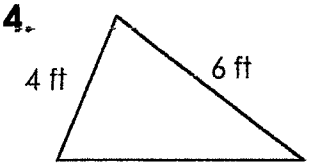


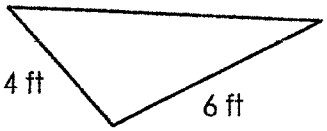
3.





4.



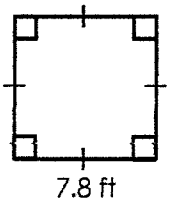


Perimeter

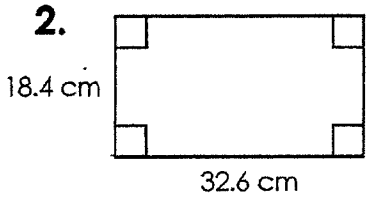
Date:

Find the perimeter of each figure.

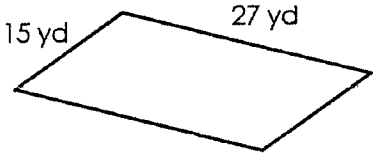
1.



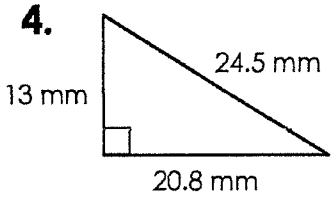
2.



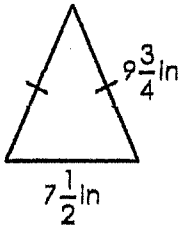
3.



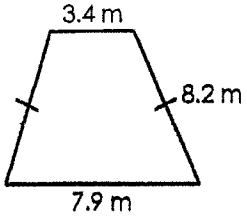
4.



5.



6.

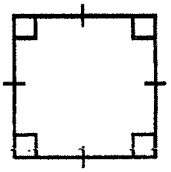


Area:
Rectangles & Parallelograms

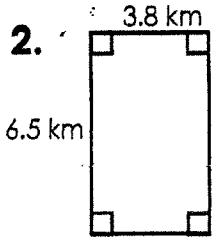
Date:

Find the area of each figure.

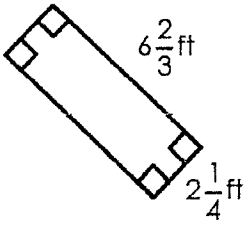
1.



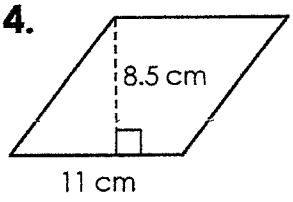
2.



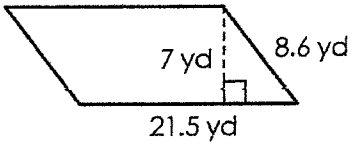
3.



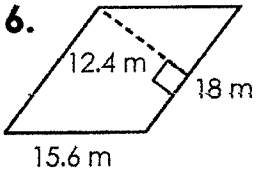
4.



5.



6.

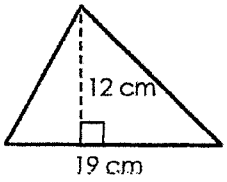


Area:
Triangles & Trapezoids

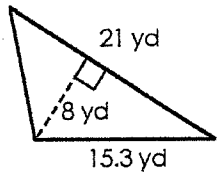
Date:

Find the area of each figure.

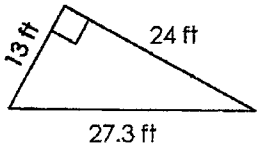
1.



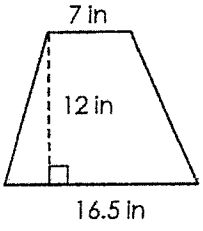
2.



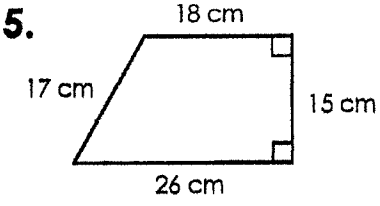
3.



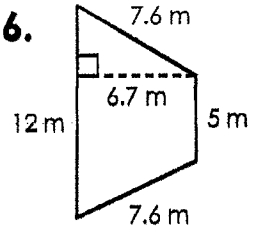
4.



5.

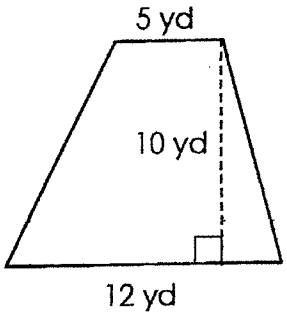


6.



Perimeter & Area Applications

Date:



1. A rectangular vegetable garden has sides measuring 15 feet and 24 feet. If a fence is needed to keep animals out, how many fencing is needed?

2. Brianna is having her driveway with dimensions shown to the left sealed. If it sealing costs $1.80 per square yard, find the cost to seal her driveway.

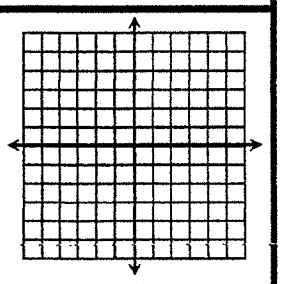
3. Find the height of a triangle with a base measuring 17 meters and an area of 204 square meters.

Polygons on the Coordinate Plane

Date:

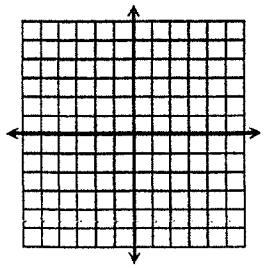
1. Graph and find the **perimeter** of the polygon:

   $A(-4, 2)$, $B(5, 2)$, $C(5, -4)$, $D(-4, -4)$

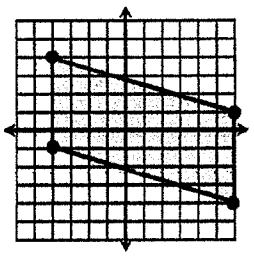


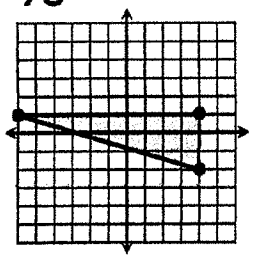
2. Graph and find the **area** of the polygon:

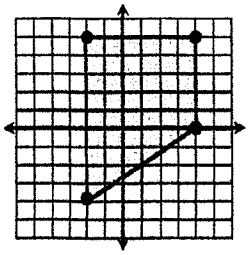
   $P(4, 4)$, $Q(2, -3)$, $R(-6, -3)$



Find the area of each polygon:

3. 

4. 

5. 

Adding & Subtracting Integers

Date:

Find each sum or difference.

1. $16+(-18)$
2. $-13+(-4)$
3. $9-(-1)$
4. $-2-(-2)$
5. $-3+16$
6. $5-19$

Fill in the each circle using a <, >, or = symbol.

7. $-9-(-3)$ ◯ $-4+(-8)$
8. $6-16$ ◯ $-5-(-5)$

9. Marcus spent $42 on gas and returned a shirt to a store for a $16 refund. Find the change in his bank account balance. Model this problem using a sum or difference expression, then solve.

Integer Operations

Date:

Evaluate.

1. $-27\div(-9)$
2. $7-(-8)$
3. $-3+(-2)$
4. $-8(6)$
5. $16+(-18)$
6. $\frac{21}{-3}$
7. $-21+5$
8. $-5\cdot(-4)$
9. $-1-(-19)$
10. $\frac{0}{-4}$
11. $-12-17$
12. $-60\div6$
13. $14(-3)$
14. $-4+(-4)$
15. $-15-(-11)$
16. $12\div0$
17. $-17(-2)$
18. $16+(-16)$

Percents & Fractions (Set 1)

Date:

Write each percent as a fraction in simplest form.

1. 72%

2. 26%

3. 195%

4. 40%

5. 108%

6. 2.5%

Write each fraction as a percent.

7. $\frac{47}{50}$

8. $\frac{9}{10}$

9. $\frac{16}{25}$

10. $1\frac{3}{20}$

11. $\frac{107}{200}$

12. $\frac{18}{75}$

Percents & Fractions (Set 2)

Date:

Write each percent as a fraction in simplest form.

1. 128%

2. 9.5%

3. 62.4%

Write each fraction as a percent. (use division)

7. $\frac{3}{50}$

8. $\frac{13}{4}$

9. $\frac{15}{24}$

10. $\frac{17}{40}$

11. $\frac{8}{15}$

12. $1\frac{8}{9}$

Unit Rates

Date:

Express each rate as a unit rate:

1. 63 passengers : 9 cars

2. 252 miles : 9 gallons of gas

3. 8 feet : 25 seconds

4. 7.2 yards of ribbon : 4 bows

4. City A is 3 square miles and has 177 homes for sale. City B is 2.5 square miles and has 155 homes for sale. Which city has the most homes for sale per square mile?

Unit Prices

Date:

Use unit rates to choose the better deal:

1. Option A) $36 for 8 rounds of mini-golf
Option B) $24 for 5 rounds of mini-golf

2. Option A) 18-oz box of cereal for $5.76
Option B) 12-oz box of cereal for $3.36

3. Option A) 0.8 pounds of deli ham for $6.72
Option B) 1.4 pounds of deli ham for $11.90

Representing Inequalities

Date:

Write as an inequality.

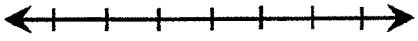
1. "A number is less than or equal to 25."

2. "A number is at least -9."

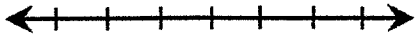
3. "14 is below a number."

Graph each inequality on the number line.

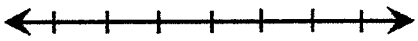
4. $x > 12$



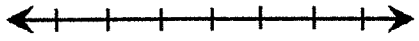
5. $y \leq -1$



6. $r \geq 3$



7. $-8 > a$



Determine whether the given value is a solution to the inequality.

8. $k \leq -4;\ k = -7$

9. $p \geq \frac{5}{6};\ p = \frac{7}{8}$

10. $c > 9;\ c = 9$

Rational One-Step Equations

Date:

Solve each equation. Check your solution.

1. $x + 14.598 = 101.3$

2. $\frac{a}{7.8} = 3.25$

3. $18.4 = 1.6k$

4. $\frac{5}{6} + m = 1\frac{7}{8}$

5. $\frac{4}{15} = \frac{8}{9}p$

6. $v \div 1\frac{1}{2} = 1\frac{5}{9}$

Proportional Relationships

Date:

Determine whether the quantities in the table represent a proportional relationship. If yes, give the constant of proportionality.

1.

Orange Juice (oz)	24	56	96
Servings	3	7	12

2.

Number of Tables	4	9	20
Number of Guests	60	135	240

3.

Bird Seed (lbs)	5	8	12
Cost ($)	3	4.80	7.20

Percents & Decimals

Date:

Write each percent as a decimal.

1. 39% **2.** 77% **3.** 6%

4. 192% **5.** $26.\overline{6}\%$ **6.** 0.85%

Write each decimal as a percent.

7. 0.52 **8.** 0.91 **9.** 0.3

10. $1.4\overline{4}$ **11.** 2.2 **12.** 0.074

Converting Fractions, Decimals, & Percents

Date:

	Fraction	Decimal	Percent
1.		0.68	
2.			300%
3.	$\frac{9}{8}$		
4.		0.4	
5.	$1\frac{2}{3}$		
6.			52.5%
7.	$\frac{4}{25}$		

Comparing Fractions, Decimals, & Percents

Date:

Compare the numbers using a <, >, or = symbol.

1. $\frac{18}{25}$ ◯ 70%

2. 140% ◯ 0.275

3. 44% ◯ $\frac{8}{18}$

4. $\frac{11}{40}$ ◯ 28%

5. A theater put on a production with three performances. The table below gives the portion of seats filled for each performance. List the performances from greatest to least by the number of people who attended.

Performance	A	B	C
Seats Filled	95%	0.925	$\frac{47}{50}$