



STUDENT

THAO

GROUP

INSTRUCTOR

DATE

Mid-Semester Quiz

For **full credit**, show all of your work and explain your reasoning!
 Each Question is worth **10 POINTS**. Each Correction is worth **1 POINT**.

SCORE:

/100

CORRECTIONS	QUESTIONS
	<p>1. a) (4 POINTS) What is 0.1% of 4378?</p> <p style="text-align: center;">43.78</p> <p>b) (4 POINTS) Rewrite your answer to a) in the form below:</p> $\frac{4}{w} + \frac{3}{x} + \frac{7}{y} + \frac{8}{z}$ <p style="text-align: center;">$w=10 \quad x=1 \quad y=0.1 \quad z=0.01$</p> <p>c) (2 POINTS) What is the value of $w + x + y + z$? 11.11</p>
	<p>2.a) (6 POINTS) 45% of some number k is equal to 72. What is the value of 195% of k?</p> <p style="text-align: center;">$k = 0.45(72) = 32.4$</p> <p style="text-align: center;">$so: 32.4(1.95) = \boxed{63.18}$</p> <p>b) (4 POINTS) Circle the correct equation or inequality. Then, show an example to justify your answer (in other words, choose values for c and d to show that your choice is true)</p> <p style="text-align: center;"> <input checked="" type="radio"/> $c\% \text{ of } d < d\% \text{ of } c$ <input type="radio"/> $c\% \text{ of } d = d\% \text{ of } c$ <input type="radio"/> $c\% \text{ of } d > d\% \text{ of } c$ </p> <p style="text-align: center;">$50\% \text{ of } 10 < 10\% \text{ of } 50$</p>



QUIZ

CORRECTIONS		QUESTIONS																										
		<p>3. After the 2012 presidential elections, a survey was taken asking people how old they were and if they voted. The results are shown below:</p> <table border="1"> <thead> <tr> <th colspan="2"></th> <th colspan="2">How old are you?</th> <th></th> </tr> <tr> <th colspan="2"></th> <th>Under 30</th> <th>Over 30</th> <th>Total</th> </tr> </thead> <tbody> <tr> <th rowspan="2">Did you vote in the 2012 election?</th> <th>Yes</th> <td>252</td> <td>230</td> <td>482</td> </tr> <tr> <th>No</th> <td>363</td> <td>153</td> <td>516</td> </tr> <tr> <th colspan="2">Total</th> <td>615</td> <td>383</td> <td>998</td> </tr> </tbody> </table>					How old are you?					Under 30	Over 30	Total	Did you vote in the 2012 election?	Yes	252	230	482	No	363	153	516	Total		615	383	998
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		<p>a) (2 POINTS) Fill in the correct totals in the five shaded boxes.</p>																										
		<p>b) (6 POINTS) Which is greater: the percentage of people <u>under 30</u> years old who voted, or the percentage of people over 30 years old who voted? Show your calculations:</p> <p> $\text{UNDER 30: } \frac{252}{482} = .523 = 52.3\%$ $\text{OVER 30: } \frac{230}{482} = .477 = 47.7\%$ </p>																										
		<p>c) (2 POINTS) From the survey results, 22 more people under 30 voted than people over 30. Does this contradict your answer in b) ? Explain in a complete sentence.</p> <p style="text-align: center;">NO.</p>																										



CORRECTIONS	QUESTIONS
	<p>4. A Samsung Galaxy Note 7 phone is on sale for 72% off of the original price since it sometimes catches on fire for no apparent reason. If the sale price is \$122.50, then what was the original price?</p> <p style="text-align: right;">$72\% = 0.72$</p> $\frac{122.50}{0.72} = \frac{(0.72)X}{0.72} \leftarrow \text{ORIGINAL PRICE.}$ <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> $\\$170.14 = X$ </div>
	<p>5. a) (6 POINTS) As a 9th grader, Trinity used to study with flash cards for an average of 25 minutes per day. As a 10th grader, she studies for an average of 47.5 minutes per day. By what percent has the number of minutes Trinity studies per day increased?</p> $\frac{47.5 - 25}{47.5} = 0.47 = \boxed{47\%}$ <p>b) (4 POINTS) Fatma increased the number of minutes she spends studying by the same percent as Trinity did. If Fatma spent an average of k minutes studying as a 10th grader, then write an expression to represent the average number of minutes she spent studying as a 9th grader.</p> $0.47k$



QUIZ

CORRECTIONS

QUESTIONS

6. Frank and Shalyn each open a bank account with an initial deposit of \$7,000. Frank's bank offers 4.5% annual interest, and Shalyn's bank offers 3.75% annual interest.

a) (4 POINTS) Write two expressions to represent how much money Frank and Shalyn will have in their bank accounts after t years.

<u>Frank's Expression</u>	<u>Shalyn's Expression</u>
$7000(1.045)^t$	$7000(1.0375)^t$

b) (6 POINTS) If they both leave their money in their banks for 31 years, how much more money will Frank have in his account than Shalyn will have in her account?

$$t = 31$$

FRANK:

$$7000(1.045)^{31} = 27,397$$

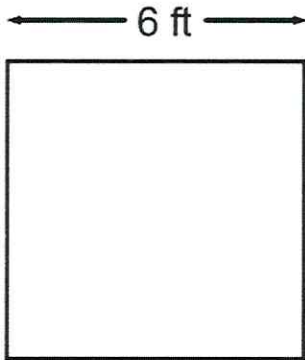
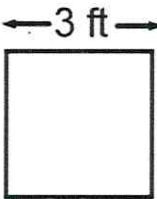
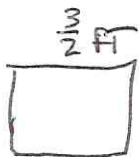
↑ FINAL ANSWER



CORRECTIONS	QUESTIONS
	<p>7. The model $a\left(1 + \frac{r}{n}\right)^{nt}$ is used to describe compound interest.</p> <p>This model is used to represent the following situation: Yomaris deposits \$300 in a savings account that pays 9% annual interest compounded quarterly (four times per year), and leaves her money in this account for 15 years.</p> <p>a) (4 POINTS) What are the values of a, r, n, and t?</p> <p style="margin-left: 40px;"> $a = 300$ $n = 4$ $r = 9$ $t = 15$ </p> <p>b) (2 POINTS) What is the value of $1 + \frac{r}{n}$?</p> <p style="margin-left: 100px;">$1 + \frac{9}{4} = \boxed{3.25}$</p> <p>c) (4 POINTS) How much interest does Yomaris receive over this time period?</p> <p style="margin-left: 100px;">$300(3.25)^{60} = \text{A BIG NUMBER!}$</p>
	<p>8) Yesterday, there were 2,000 bacteria in a petri dish. This population grows continuously at a rate of 50% every day. Approximately how many times larger will the population be tomorrow than it was yesterday?</p> <p style="margin-left: 100px;"> $\xrightarrow{\text{2 DAYS, SO } t=2}$ </p> <p style="margin-left: 100px;"> $2000(1.5)^2 = \boxed{4500}$ 50% MEANS $r = 0.5$ </p> <p style="margin-left: 150px;"> \uparrow FINAL ANSWER. </p>



QUIZ

CORRECTIONS	QUESTIONS
	<p>9. A square is shrinking. Yesterday, the side length of the square used to be 6 feet long, but now it is 3 feet long.</p> <div style="display: flex; justify-content: space-around; align-items: center;"><div style="text-align: center;"><p>Yesterday</p></div><div style="text-align: center;"><p>Today</p></div><div style="text-align: center;"><p>Tomorrow</p></div></div> <p>a) (4 POINTS) By what percent has the area of the square decreased from yesterday to today?</p> $\frac{6-3}{6} = \frac{3}{6} = .5, \text{ so } 50\% \text{ DECREASE.}$ <p>b) (2 POINTS) The side length of the square tomorrow is half as long as it is today. Draw tomorrow's square, and label the length of one side</p> <p>c) (4 POINTS) By what percent will the area of the square have decreased over these three days?</p> $\frac{6 - \frac{3}{2}}{6} = .75, \text{ so } 75\% \text{ DECREASE.}$