Prealgebra
Big Quiz #1.4

Name: Key

SHOW YOUR WORK FOR CREDIT!

Section 1: **Fractions / Decimals / Percentages.** **[1 Point Per Blank]**
Complete the table below.

Fraction	Decimals	Percentages
$\frac{7}{8}$	0.875	87.5%
$\frac{65}{1000} = \frac{13}{200}$	0.065	6.5%
$\frac{48}{100} = \frac{12}{25}$	0.48	48 %
$\frac{5}{2}$	2.5	250%
$\frac{9}{10}$	0.9	90%
$\frac{5}{1000} = \frac{1}{200}$	0.005	0.5 %
$\frac{1}{100}$	0.01	1%
$\frac{3}{20}$	0.15	15%
$\frac{3}{20}$	0.15	15 %

Section 2: Percentage Problems – Missing Items **[4 Points Each]**

1.) What is 87% of 245?

$x = .87(245)$

$x = 213.15$

2.) 472 is what percentage of 825?

$\frac{472}{825} = \frac{x(825)}{825}$

$0.572 = x \rightarrow 57.2\%$

3.) 6% of what number is 80?

$\frac{0.06x}{.06} = \frac{80}{.06}$

$x = 1333.33$

4.) What is 3% of 345?

$x = .03(345)$

$x = 10.35$

5.) What percentage of 23 is 1?

$\frac{x(23)}{23} = \frac{1}{23}$

$x = 0.043478$

4.35%

6.) 45 is 90% of what number?

$\frac{45}{.90} = \frac{0.90x}{.90}$

$50 = x$

7.) What number is 4.5% of 800?

$x = (0.045)(800)$

$x = 36$

8.) 300 is what percentage of 725?

$\frac{300}{725} = \frac{x(725)}{725}$

$0.413793 = x$

$\rightarrow 41.38\%$

9.) What is 4% of 54?

$x = 0.04(54)$

$x = 2.16$

10.) 80 is what percentage of 85?

$\frac{80}{85} = \frac{x(85)}{85}$

$0.941176 = x \rightarrow 94.12\%$

Section 3: Percentage Word Problems [4 Points Each]

SHOW YOUR WORK!

11.) Erin buys a calculator that has a cost of $15.99. At the register, she pays 6.5% tax. How much tax does she pay?

(.065)15.99 = 1.03935

$1.04

12.) Mark goes to the mall and sees a new pair of shoes regularly priced at $79 on sale for 22% off. How much would the shoes cost Mark if he buys them on sale?

79(.22) = 17.38

79 − 17.38 = 61.62

$61.62

13.) Tony goes to dinner, and his bill comes to $20. If he wants to tip the waitress 18%, how much does the dinner cost him overall?

20(0.18) = 3.60

20 + 3.60 = 23.60

$23.60

14.) A magazine subscription costs $24.95. Buying the subscription today saves you 10% How much would you save on the magazine subscription if you bought it today?

24.95(0.10) = 2.495

$2.50

15.) Dan buys a new watch, regularly priced at $59.99. How much would the watch cost him if he needs to pay an 8% shipping fee?

59.99(0.08)

= 4.7992

59.99 + 4.7992 = 64.7892

$64.79

Section 3: Percentage Word Problems **[8 Points Each]**

16.) A new car has a sticker price of $22,895. Fred decides to buy this car. He gets a 12% customer loyalty discount, but needs to pay 7% in taxes and fees. How much would Fred need to pay for the car?

$21,557.93

1 → 22,895(.12) = 2747,40

2 → 22895 - 2747,40 = 20147,60

3 → 20147,60(0,07) = 1410,33

4 → 20147.60 + 1410,33 = 21557.93

17.) Sarah buys a new book. The book has a sticker price of $29.99. It is on sale for 5% off, and Sarah gets an additional 12% off for being a regular customer at the store. How much does the book cost her?

$25.07

1 → 29,99 (.05) = 1,4995 = 1.50

2 → 29.99 - 1.50 = 28,49

3 → 28,49 (.12) = 3.4188 → 3,42

4 → 28,49 - 3,42 = 25,07

18.) Trevor buys a new pair of jeans online. They are priced at $34.99, but he needs to pay 6.5% for taxes and an additional 4% for shipping. How much would the jeans cost him?

$38.75

1 → 34,99 (0,065) = 2,27

2 → 34,99 + 2,27 = 37,26

3 → 37,26 (.04) = 1,49

4 → 37,26 + 1,49 = 38,75

Section 4: Ratio Problems **[4 Points Each]**

SET UP YOUR RATIOS – WITH LABELS – FOR FULL CREDIT

19.) The ratio of men to women in an auditorium is 5 to 3. If there are a total of 1952 people in the auditorium, how many are women?

732 women

$$\frac{3 \text{ women}}{8 \text{ people}} = \frac{x \text{ women}}{1952 \text{ people}}$$

$$\frac{3}{8} = \frac{x}{1952} \rightarrow \frac{8x}{8} = \frac{5856}{8} \rightarrow x = 732$$

20.) For every 5 mph over the speed limit a car travels, there is a $12 fine. If a car was going 45 mph over the speed limit, how much of a fine would the driver receive?

$108 fine

$$\frac{5 \text{ mph}}{\$12} = \frac{45 \text{ mph}}{\$ \ x} \rightarrow \frac{5x}{5} = \frac{540}{5}$$

$$x = 108$$

21.) There are 4 pens for every 3 pencils in a bin. If there are a total of 243 pencils, how many pens are there in the bin?

324 pens

$$\frac{4 \text{ pens}}{3 \text{ pencils}} = \frac{x \text{ pens}}{243 \text{ pencils}} \rightarrow \frac{3x}{3} = \frac{972}{3}$$

$$x = 324$$

22.) On a test, Carrie missed 2 problems for every 7 problems she answered correctly. If there were 126 questions on the test, how many questions did Carrie miss?

28 missed

$$\frac{2 \text{ missed}}{9 \text{ total}} = \frac{x \text{ missed}}{126 \text{ total}} \rightarrow \frac{9x}{9} = \frac{252}{9}$$

$$x = 28$$

Section 5: One Step Equations **[2 Points Each]**

Solve each equation, showing your work appropriately.

23.) $\frac{x}{4}=35$ $(\cdot 4)$

$x = -140$

24.) $-15+x=-48$

$+15 \quad +15$

$x = -33$

25.) $-60=x-21$

$+21 \quad +21$

$-39 = x$

26.) $\frac{5}{3}\cdot\frac{3}{5}x=60\cdot\frac{5}{3}$

$x = 100$

27.) $(-1)-x=-15$ (-1)

$x = 15$

28.) $3\frac{1}{4}x=80$

$\frac{3.25x}{3.25}=\frac{80}{3.25}$

$x = 24.6154$

29.) $5x=88$

$\frac{5}{5} \quad \frac{5}{5}$

$x = 17.6$

30.) $10+x=-33$

$-10 \quad -10$

$x = -43$

Section 6: Evaluating Expressions **[3 Points Each]**

SHOW EACH STEP USED IN CALCULATING THE FOLLOWING:

31.) $(-4)^2-10\cdot6\div3\cdot2-4$

$= 16-10\cdot6\div3\cdot2-4$

$=16-60\div3\cdot2-4$

$=16-20\cdot2-4$

$=16-40-4$

$=-24-4$

$=-28$

32.) $-6^2\div(-3+1)+4-8\cdot5$

$=-6^2\div(-2)+4-8\cdot5$

$=-36\div(-2)+4-8\cdot5$

$=18+4-8\cdot5$

$=18+4-40$

$=22-40$

$=-18$

Section 7: Scientific Notation **[3 Points Each]**

Convert the following numbers into scientific notation:

33.) 3,450,000,000,000

$= 3,45 \times 10^{12}$

34.) -0.0000103

$= -1,03 \times 10^{-5}$

35.) -1,000,000

$= -1.0 \times 10^{6}$

36.) 0.0232

$= 2.32 \times 10^{-2}$

Convert the following numbers out of scientific notation:

37.) -3.22×10^{7}

$= -3.2200000$

$= -32200000$

38.) 5.4×10^{-2}

$= 0.054$

39.) 8.72×10^{5}

8.72000

$= 872,000$

40.) -2.1×10^{-8}

0.00000021

$= -0.000000021$

Bonus ..... **[5 Points]**

Joe bought a new video game system online. It was priced for $259, but there was a 12% off sale. Additionally, there was a shipping fee. Joe ended up paying $244.44 for the system.
What was the percent shipping fee on the purchase?

1 → $259(.12) = 31.08$

2 → $259 - 31.08 = 227.92$

3 → $227.92x$ = shipping fee

$244.44 = 227.92 + 227.92x$

$-227.92 \quad -227.92$

$\frac{16.52}{227.92} = \frac{227.92x}{227.92}$

$0.072482 = x$

7.25% shipping fee