Name **Answer Key**   Unit 4 Review   Period_____

1.   A volleyball team plays 12 home matches out of 25 total matches. Write the ratio of home matches to away matches. (+2) $12 : 13$ $\dfrac{12 \text{ home}}{13 \text{ AWAY}}$

2.   On the football field, there are usually 5 linemen and 6 skilled positions on offense. Find the ratio of linemen to total offensive players on the field. (+ 2)

Directions: Solve each proportion. (+4)

3. $\dfrac{3}{4} = \dfrac{r}{18}$

$4r = 54$

$\boxed{r = 13.5}$

4. $\dfrac{k}{9} = \dfrac{63}{81}$

$\dfrac{81k}{81} = \dfrac{567}{81}$

$\boxed{k = 7}$

5. $\dfrac{-5n}{8} = \dfrac{15}{4}$

$120 = -20n$

$\boxed{-6 = n}$

6. $\dfrac{34}{6} = \dfrac{2r+1}{3}$

$6(2r+1) = 102$

$12r + 6 = 102$

$\dfrac{-6 \quad -6}{12r = 96}$

$\boxed{r = 8}$

7. $\dfrac{4}{t} = \dfrac{8}{t-3}$

$4(t-3) = 8t$
$4t - 12 = 8t$
$-4t \qquad -4t$
$-12 = 4t$

$\boxed{-3 = t}$

8. $\dfrac{2}{-3} = \dfrac{4v+4}{2v+14}$

$2(2v + 14) = 3(4v+$
$4v + 28 = 12v - 12$

$\dfrac{40}{-16} = \dfrac{16v}{-16}$

$\boxed{-2.5 = v}$

Directions: Answer the following questions using a proportion. (+4)

9.   What percent of 225 is 99?

$\dfrac{P}{100} = \dfrac{99}{225}$ $\dfrac{225p}{225} = \dfrac{9900}{225}$

$\boxed{p = 44\%}$

10.   What number is 60% of 85?

$\dfrac{60}{100} = \dfrac{x}{85}$ $100x = 5100$

$\boxed{x = 51}$

11.   What number is 35% of 80.

$\dfrac{35}{100} = \dfrac{x}{80}$ $100x = 2800$

$\boxed{x = 28}$

12.   What number is 100% of 10?

$\boxed{10}$

13.   300 is 45% of what number?

$\dfrac{45}{100} = \dfrac{300}{x}$ $45x = 30000$

$\boxed{x = 666.\overline{66} \approx 667}$

14.   50 is what percent of 40?

$\dfrac{P}{100} = \dfrac{50}{40}$ $40p = 5000$

$\boxed{p = 125\%}$

Directions: Find the percent. Round your answers to the nearest whole percent, if necessary: (+4)

15.   90 rock CD's out of 125 CD's

⟹ 90 is what % of 125?

$\dfrac{P}{100} = \dfrac{90}{125}$ $\boxed{P = 72\%}$

16.   97 freshmen out of a HS of size 430

⟹ 97 is what % of 430?

$\dfrac{P}{100} = \dfrac{97}{430}$ $430p = 9700$

$\boxed{P = 22.558 \approx 23\%}$

17.   18 correct answers out of 25 total

18 is what % of 25?

$\dfrac{P}{100} = \dfrac{18}{15}$ $25p = 1800$

$\boxed{p = 72\%}$

18.   16 girls out of a class of 25?

what % of 25 is 16?

$\dfrac{P}{100} = \dfrac{16}{25}$ $25p = 1600$

$\boxed{p = 64\%}$

Directions: Solve each equation for y.(+4)

19. $4y - 16x = 12$

$+16x \quad +16x$

$\dfrac{4y}{4} = \dfrac{16x}{4} + \dfrac{12}{4}$

$\boxed{y = 4x + 3}$

20. $\dfrac{3y}{3} = \dfrac{6x}{3} + \dfrac{9}{3}$

$\boxed{y = 2x + 3}$

21. $x - y = 13$

$-x \qquad -x$

$\dfrac{-y}{-1} = \dfrac{-x}{-1} + \dfrac{13}{-1}$

$\boxed{y = x - 13}$

22. $x = 2 - y$

$-2 \quad -2$

$\dfrac{x-2}{-1} = \dfrac{-y}{-1}$

$\boxed{-x + 2 = y}$

Application Problems (+4 each)

1. **Hobbies.** Some model trains are built to $\frac{1}{87}$ of actual size. Suppose an actual boxcar is 65 ft long. How many **inches** long is the model?

$\dfrac{\text{Model ft}}{\text{Real ft}} \quad \dfrac{1}{87} = \dfrac{x}{65}$

$87x = 65$

$x = .747 \ \underline{\underline{\text{feet}}} \times \dfrac{12 \text{ inches}}{1 \text{ ft}} = 8.966 \text{ inches}$

$\boxed{x \approx 9 \text{ inches}}$

2. **I-Sync I-know…** It took 220 seconds to sync 800 songs from your computer to your ipod. At this rate, how long will it take to sync 1800 songs?

$\dfrac{\text{sec}}{\text{songs}} \quad \dfrac{220}{800} = \dfrac{x}{1800}$

$800x = 396000$

$x = 495 \text{ seconds} \quad (8.25 \text{ min})$

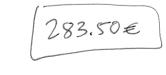3. **Maps** A map has a scale of 1cm: 12km. The distance between two cities on the map is 6.8 cm. Estimate the actual distance between the cities.

$\dfrac{\text{MAP cm}}{\text{REAL km}} \quad \dfrac{1}{12} = \dfrac{6.8 \text{ cm}}{x}$

$\boxed{x = 81.6 \text{ km}}$

4. **Coo-Coo!** A new coo-coo clock in the Black Forrest costs around 350€. It's a good thing they take VAT forms, which take 19% off of the price! How much is the coo-coo clock if you use a VAT form?

what is 19% of 350€?

$\dfrac{19}{100} = \dfrac{x}{350} \qquad x = 66.50 €$

$350€ \text{ TOTAL}$
$- 66.50€ \text{ VAT}$
$= 283.50 €$

$\boxed{283.50 €}$

5. **Beef Tips.** After eating out at the finest steakhouse in Kaiserslautern, Sully left an 8 Euro tip which was 14% of cost of the meal. How much was Sully's meal?

8 is 14% of what #?

$\dfrac{14}{100} = \dfrac{8}{x} \qquad 14x = 800$

$\boxed{x = 57.14 €}$