Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Block:\_\_\_\_\_\_\_

**Ratios, Rates, Unit Rates, Proportions and Direct Variation**

**I. Vocabulary Match:** Write the letter of the word that most specifically describes each situation.

|  |  |
| --- | --- |
| 1. \_\_\_\_ $\frac{15 boys}{20 students}$
2. \_\_\_\_ $15 boys:20 girls$
3. \_\_\_\_ $\frac{15 pencils}{\$3.00}$ =$\frac{30 pencils}{\$6.00}$
4. \_\_\_\_\_ $\$10 per hour$
5. \_\_\_\_\_ 5 gallons for $22.50
 | **a)** Part to Part Ratio **b)** Part to Whole Ratio (aka fraction)**c)** Rate**d)** Unit Rate**e)** Proportion |

**II. Solve Proportions**

1. \_\_\_\_\_\_ $\frac{3}{8}$ = $\frac{y}{32}$
2. \_\_\_\_\_\_ $\frac{3}{8}$ = $\frac{15}{x}$
3. \_\_\_\_\_\_ $\frac{3}{8}$ = $\frac{5}{t}$
4. \_\_\_\_\_\_ $\frac{n}{9}$ = $\frac{5}{15}$
5. \_\_\_\_\_\_ $\frac{3}{x}$ = $\frac{5}{11}$
6. \_\_\_\_\_\_$ \frac{\$5.40}{2ft}$ = $\frac{p}{10ft}$
7. \_\_\_\_\_\_$ \frac{3.4}{8.9}$ = $\frac{17}{n}$
8. \_\_\_\_\_\_ 5 : 25 = y : 30
9. \_\_\_\_\_\_ $\frac{ \frac{ 3}{4} }{ \frac{2}{3} }$ = $\frac{ \frac{3}{8} }{n}$
10. \_\_\_\_\_\_ $\frac{3 \frac{1}{2} }{ \frac{1}{2} }$ = $\frac{ 17\frac{1}{2}}{n} $

**III. Tables and Word Problems**: (Hint: Order matters when setting up proportions!!!!)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Approximate Circumference (C) | 3.14 in | 6.28 in | **c** | 25.12 in |
| Diameter (D) | 1 in | 2 in | 5 in | **d** |

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_In the table above, find c.
2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_In the table above, find d.
3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_If you read 3,750 words in 15 minutes, how many words per minute is that?
4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_You’ve sold 15 tickets for $56.25. If you sale 50 total tickets, what will you make?
5. \_\_\_\_\_\_\_\_\_\_\_\_\_Which is the better deal, 20 oz. for $3.75 or 32 oz. for $5.75?
6. \_\_\_\_\_\_\_\_\_\_\_\_\_ If there are 24 inches in 2 feet, how many feet is 60 inches?
7. \_\_\_\_\_\_\_\_\_\_\_\_\_$ If You average 10 \frac{1}{8}$ miles in 15 min., how far will you average in 45 min?
8. Yes or No Your height and age vary directly from year to year. (They are proportionate.)

**IV. Apply proportional relationships to tables, graphs, and equations. Find the constant of proportionality (aka the unit rate or slope) given a table.**

|  |  |  |  |
| --- | --- | --- | --- |
| Price | $3.75 |  $7.50 | $16.875 |
| Gallon | 1 |  | g |

1. \_\_\_\_\_\_\_\_\_\_\_Given the table above, find the missing number of gallons.
2. \_\_\_\_\_\_\_\_\_\_\_What is k, the constant of proportionality (unit rate), in the table above?
3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Write the equation for the price of gas from the table above.

Answer Key:

1. B
2. A
3. E
4. D
5. C
6. 12
7. 40
8. 13.3333…
9. 3
10. 6.6
11. 27
12. 44.5
13. 6
14. .3333…
15. 2.5
16. 15.7 in.
17. 8 in.
18. 250 words per minute
19. $187.50
20. 32 oz. for $5.75
21. 5 ft.
22. 30.375 miles
23. No
24. 4.5 gallons
25. $3.75
26. y= 3.75x