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Number Sense

By

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Transparency

Model

Transparency Model

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Number Sense Notes by David Ballard

I. Fractions Decimals Percents Tricks Examples

A. $\left(\frac{1}{10}\right) = . = \% \quad \text{times } \frac{1}{10} \quad \begin{matrix} \text{move} \\ \text{decimal} \end{matrix} \quad \text{divided by } \frac{1}{10} \quad \begin{matrix} \text{move} \\ \text{decimal} \end{matrix}$

B. $\left(\frac{1}{9}\right) = . = \% \quad \% \text{ of } 90 \text{ means } \cdot \frac{90}{1} =$

$\frac{1}{90} = . = \% \quad \% \text{ of } 90 \text{ means } \cdot \frac{90}{1} =$

$\frac{2}{9} = . = \% \quad \% \text{ of } 90 \text{ means } \cdot \frac{90}{1} =$

$\frac{2}{90} = . = \%$

$.3\bar{2} = \frac{3}{10} + \frac{2}{100} = \frac{30}{100} + \frac{2}{100} = \frac{32}{100} \quad \text{OR} \quad \frac{32}{100} = \frac{8}{25} = \frac{32}{100} = \frac{8}{25}$

$.7\bar{4} = \frac{7}{10} + \frac{4}{100} = \frac{70}{100} + \frac{4}{100} = \frac{74}{100} \quad \text{OR} \quad \frac{74}{100} = \frac{37}{50}$

C. $\left(\frac{1}{8}\right) = . = \% \quad \% \text{ of } 800 \text{ means } \cdot \frac{800}{1} =$

$\frac{1}{80} = . = \% \quad \% \text{ of } 800 \text{ means } \cdot \frac{800}{1} =$

$125 \times 80 = \frac{125}{1000} \cdot \frac{80}{1} \cdot \frac{1000}{1} = \frac{125 \cdot 80 \cdot 1000}{1000 \cdot 1 \cdot 1} = \frac{125 \cdot 80}{1} = 10000$
(divide by 1000 and multiply by 1000)

$80 \div 125 = \frac{80}{1} \cdot \frac{1000}{125} \cdot \frac{1}{1000} = \frac{80 \cdot 1000 \cdot 1}{1 \cdot 125 \cdot 1000} = \frac{80}{125} = \frac{16}{25}$
(multiply by 1000 and divide by 1000)

1. 10% of 88 + 88
2. $11\frac{1}{9}\%$ of 63 + $22\frac{2}{9}\%$ of 18
3. Write $.\overline{4}$ as a fraction.
4. Write $.\overline{07}$ as a fraction.
5. Write $.\overline{34}$ as a fraction.
6. Write $.\overline{62}$ as a fraction.
7. Write $.\overline{03}$ as a fraction.
8. Write $.\overline{13}$ as a fraction.
9. $12\frac{1}{2}\%$ of 32 + 16
10. $1\frac{1}{4}\%$ of 480 - 12
11. $55\frac{5}{9}\%$ of 81 + $12\frac{1}{2}\%$ of 24
12. 125×56
13. $30 \div 125$
14. 125×88
15. $70 \div 125$
16. $11\frac{1}{9}\%$ of $12\frac{1}{2}\%$ of 144
17. $1\frac{1}{4}\%$ of 80 + 10% of 80
18. $.\overline{02} \times 45 \div 2$ as a fraction
19. $.\overline{09} \times 10\%$ of 250
20. 125×72
21. $40 \div 125$
22. 125×4000
23. $120 \div 125$

Answers

1. 96.8
2. 11
3. $\frac{4}{9}$
4. $\frac{7}{45}$
5. $\frac{31}{90}$
6. $\frac{28}{45}$
7. $\frac{1}{30}$
8. $\frac{2}{15}$
9. 20
10. -6
11. 48
12. 7000
13. $.\overline{24}$
14. 11000
15. $\frac{14}{25}$ or .56
16. 2
17. 9
18. $\frac{1}{2}$
19. 2.5
20. 9000
21. .32
22. 500000
23. .96

$$\frac{3}{8} = . = \% \quad \% \text{ of } 800 \text{ means } \cdot \frac{800}{1} =$$

$$\frac{3}{80} = . = \% \quad \% \text{ of } 800 \text{ means } \cdot \frac{800}{1} =$$

$$375 \times 80 = \frac{375}{1000} \cdot \frac{80}{1} \cdot \frac{1}{1} = \frac{30}{1} \cdot \frac{80}{1} \cdot \frac{1}{1} =$$

(divide by 10 and multiply by 10 and multiply by 1)

$$90 \div 375 = \frac{90}{1} \cdot \frac{1000}{375} \cdot \frac{1}{1} = \frac{90}{1} \cdot \frac{8}{3} \cdot \frac{1}{1} =$$

(divide by 375 and multiply by 1000 and divide by 1)

$$.4375 = \frac{4}{10} + \frac{3}{100} = \frac{43}{100} = \frac{43}{100} = \frac{43}{100}$$

$$\frac{5}{8} = . = \% \quad \% \text{ of } 800 \text{ means } \cdot \frac{800}{1} =$$

$$\frac{5}{80} = . = \% \quad \% \text{ of } 800 \text{ means } \cdot \frac{800}{1} =$$

$$\frac{7}{8} = . = \% \quad \% \text{ of } 800 \text{ means } \cdot \frac{800}{1} =$$

$$D. \left(\frac{1}{6}\right) = . = \% \quad \% \text{ of } 6000 \text{ means } \cdot \frac{6000}{1} =$$

$$\frac{1}{60} = . = \% \quad \% \text{ of } 6000 \text{ means } \cdot \frac{6000}{1} =$$

$$E. \left(\frac{1}{5}\right) = . = \% \quad \% \text{ of } 300 \text{ means } \cdot \frac{300}{1} =$$

$$\frac{2}{5} = . = \% \quad \% \text{ of } 300 \text{ means } \cdot \frac{300}{1} =$$

- | | <u>Answers</u> |
|--|--------------------|
| 1. $37\frac{1}{2}\%$ of 560 | 1. 210 |
| 2. $3\frac{3}{4}\%$ of 320 | 2. 12 |
| 3. 375×48 | 3. 18,000 |
| 4. $63 \div 375$ | 4. $.168$ |
| 5. Write .2375 as a fraction. | 5. $\frac{19}{80}$ |
| 6. Write .3625 as a fraction. | 6. $\frac{29}{80}$ |
| 7. $62\frac{1}{2}\%$ of 88 | 7. 55 |
| 8. $87\frac{1}{2}\%$ of 400 | 8. 350 |
| 9. $6\frac{1}{4}\%$ of 80 | 9. 5 |
| 10. $8\frac{3}{4}\%$ of 80 | 10. 7 |
| 11. $3\frac{3}{4}\%$ of 80 | 11. 3 |
| 12. $12\frac{1}{2}\%$ of 80 | 12. 10 |
| 13. $11\frac{1}{9}\%$ of 63 | 13. 7 |
| 14. $16\frac{2}{3}\%$ of 630 | 14. 105 |
| 15. $1\frac{2}{3}\%$ of 4200 | 15. 70 |
| 16. 20% of 40% of 75 | 16. 6 |
| 17. $16\frac{2}{3}\%$ of $12\frac{1}{2}\%$ of 96 | 17. 2 |
| 18. 375×640 | 18. 240,000 |
| 19. $333 \div 375$ | 19. .888 |
| 20. 625×64 | 20. 40,000 |
| 21. $1010 \div 625$ | 21. 1.616 |
| 22. $1\frac{2}{3}\%$ of 6.12 | 22. .102 |
| 23. $3\frac{3}{4}\%$ of 8 | 23. .3 |

$$\frac{3}{5} = . = \%$$

$$\frac{4}{5} = . = \%$$

F. $\frac{1}{4}$ = . = % % of 440 means $\cdot \frac{440}{1} =$

$$\frac{1}{40} = . = \%$$
 % of 440 means $\cdot \frac{440}{1} =$

$$25 \times 44 = \frac{25}{100} \cdot \frac{44}{1} \cdot \frac{1}{1} = \frac{44}{1} \cdot \frac{1}{1} =$$

(divide by multiply by)

$$44 \div 25 = \frac{44}{1} \cdot \frac{100}{25} \cdot \frac{1}{1} = \frac{44}{1} \cdot \frac{1}{1} =$$

(multiply by divide by)

$$\frac{3}{4} = . = \%$$
 % of 8 means $\cdot \frac{8}{1} =$

$$\frac{3}{40} = . = \%$$
 % of 8 means $\cdot \frac{8}{1} =$

$$\frac{3}{400} = . = \%$$
 $\frac{3}{4}\%$ of 8 means $\cdot \frac{8}{1} =$

$$75 \times 880 = \frac{75}{100} \cdot \frac{880}{1} \cdot \frac{1}{1} = \frac{880}{1} \cdot \frac{1}{1} =$$

(divide by multiply by multiply by)

$$880 \div 75 = \frac{880}{1} \cdot \frac{100}{75} \cdot \frac{1}{1} = \frac{880}{1} \cdot \frac{1}{1} =$$

(divide by multiply by divide by)

	<u>Answers</u>
1. 60% of 55	1. 33
2. 80% of 450	2. 360
3. 25% of 420	3. 105
4. 75% of 48	4. 36
5. 25 x 480	5. 12000
6. 75 x 420	6. 31500
7. 25 x 9.6	7. 240
8. 75 x 12.48	8. 936
9. $7\frac{1}{2}\%$ of 880	9. 66
10. $2\frac{1}{2}\%$ of 120	10. 3
11. $\frac{3}{4}\%$ of 1600	11. 12
12. $4.1 \div 25$	12. 0.164
13. $121 \div 25$	13. 4.84
14. $33 \div 75$	14. 0.44
15. $69 \div 75$	15. 0.92
16. 25% of 12.4	16. 3.1
17. 75% of 1.64	17. 1.23
18. 25% of 60% of 140	18. 21
19. $2\frac{1}{2}\%$ of 880	19. 22
20. 2.5×1.6	20. 4
21. $0.75 \times 24 + 2$	21. 20
22. $25 \times 75\%$ of 880	22. 16500
23. $7\frac{1}{2}\%$ of 40 + $2\frac{1}{2}\%$ of 80	23. 3

G. $\left(\frac{1}{3}\right) = . = \text{---} = \%$ % of 99 means $\cdot \frac{99}{1} =$

$\frac{1}{30} = . = \%$ % of 99 means $\cdot \frac{99}{1} =$

$\cdot 4\bar{3} = \frac{4}{1} + \frac{1}{10} = \text{---} + \frac{1}{10} = \text{---}$ OR $\frac{\text{---}}{\text{---}} = \text{---} =$

$\cdot 54\bar{3} = \frac{54}{1} + \frac{1}{10} = \text{---} + \frac{1}{10} =$

$\frac{2}{3} = . = \%$ % of 1212 means $\cdot \frac{1212}{1} =$

$\frac{2}{30} = . = \%$

H. $\left(\frac{1}{2}\right) = . = \%$ % of 200 means $\cdot \frac{200}{1} =$

$50 \times 240 = \frac{50}{100} \cdot \frac{240}{1} \cdot \frac{1}{1} = \frac{240}{1} \cdot \frac{1}{1} =$
(divide by multiply by)

$24 \div 50 = \frac{24}{1} \cdot \frac{100}{50} \cdot \frac{1}{1} = \frac{24}{1} \cdot \text{---} \cdot \frac{1}{1} =$
(multiply by divide by)

I. Times 25, 75, 125 with remainders
(for each remainder add 25 or 75 or 125)

$25 \times 41 = \sqrt{41}^r \left(\right)$ $125 \times 83 = \sqrt{83}^r \left(\right)$

- | | <u>Answers</u> |
|--|----------------------|
| 1. $33\frac{1}{3}\%$ of 66 | 1. 22 |
| 2. Write $.5\bar{3}$ as a fraction. | 2. $\frac{8}{15}$ |
| 3. Write $.62\bar{3}$ as a fraction. | 3. $\frac{187}{300}$ |
| 4. $\frac{2}{3}$ of $33\frac{1}{3}\%$ of 90 | 4. 20 |
| 5. $6\frac{2}{3}\%$ of 612 | 5. 4.8 |
| 6. $360 \div 50$ | 6. 7.2 |
| 7. $990 \times .0\bar{3}$ | 7. 33 |
| 8. 42×25 | 8. 1050 |
| 9. 49×75 | 9. 3675 |
| 10. 81×125 | 10. 10125 |
| 11. $42 \div 25$ | 11. 1.68 |
| 12. $49 \div 25$ | 12. 1.96 |
| 13. $.0\bar{6} \times 330$ | 13. 22 |
| 14. $21 \div \frac{1}{2} \times 33\frac{1}{3}\%$ | 14. 34 |
| 15. $21 \div 33\frac{1}{3}\% \div \frac{1}{2}$ | 15. 126 |
| 16. Write $.2\bar{6}$ as a fraction. | 16. $\frac{4}{15}$ |
| 17. $66\frac{2}{3}\%$ of 156 | 17. 104 |
| 18. $33\frac{1}{3}\%$ of 93 | 18. 31 |
| 19. $3\frac{1}{3}\%$ of 66 | 19. 2.2 |
| 20. $\frac{2}{3}\%$ of 60 | 20. .4 |
| 21. $\frac{1}{3}\%$ of 9.6 | 21. .032 |
| 22. 25×31 | 22. 775 |
| 23. 75×41 | 23. 3075 |

Cumulative Review for 1-4

	<u>Answers</u>
1. Write $.3\bar{4}$ as a fraction.	1. $\frac{31}{90}$
2. $55\frac{5}{9}\%$ of 81 + $12\frac{1}{2}\%$ of 24	2. 48
3. 125×88	3. 11000
4. $120 \div 125$	4. .96
5. $1\frac{1}{4}\%$ of $480 - 12$	5. -6
6. 375×48	6. 18000
7. $63 \div 375$	7. .168
8. $1\frac{2}{3}\%$ of 4200	8. 70
9. $37\frac{1}{2}\%$ of 560	9. 210
10. $8\frac{3}{4}\%$ of 80	10. 7
11. 75×12.48	11. 936
12. $69 \div 75$	12. .92
13. $2\frac{1}{2}\%$ of 880	13. 22
14. $\frac{3}{4}\%$ of 1600	14. 12
15. $121 \div 25$	15. 4.84
16. 2.5×1.6	16. 4
17. $7\frac{1}{2}\%$ of 40 + $2\frac{1}{2}\%$ of 80	17. 5
18. Write $.5\bar{3}$ as a fraction.	18. $\frac{8}{15}$
19. 49×25	19. 1225
20. $\frac{2}{3}$ of $33\frac{1}{3}\%$ of 90	20. 20
21. $990 \times .0\bar{3}$	21. 33
22. $6\frac{2}{3}\%$ of 612	22. 4.8
23. Write $.62\bar{3}$ as a fraction.	23. $\frac{187}{300}$

5A

1. $12,345 \times 11$
2. $12,345 \times 111$
3. $12,345 \times 1111$
4. 231×101
5. 426×101
6. 103×18
7. 23×29
8. $17 \times 20 + 20 \times 13$
9. $25 \times 24 - 25 \times 11$
10. $18 \times 3\frac{1}{3}$
11. 342×111
12. 137×101
13. 120×42
14. $28 \times 3\frac{1}{4}$
15. $75 \times 16 + 14 \times 75 - 4 \times 75$
16. $33\frac{1}{3}\% \text{ of } 69 + 33\frac{1}{3}\% \text{ of } 30$
17. 42×41
18. 54×62
19. 35×101
20. 124×111
21. $36 \times 4\frac{1}{5}$
22. $24 \times 5\frac{3}{8}$
23. $25 \times 48 \div 42 \times 25$

Answers

1. 135,795
2. 1,370,295
3. 13,715,295
4. 23,331
5. 43,026
6. 1854
7. 667
8. 600
9. 325
10. 60
11. 37,962
12. 13,837
13. 5040
14. 88
15. 1950
16. 33
17. 1722
18. 3348
19. 3535
20. 13,764
21. 148
22. 129
23. 2250