

Converting Fractions to Decimals

4.567 =	4 .	5	6	7
PLACE VALUE	ones	tenths	hundredths	thousandths
9.004 =	9 .	0	0	4

<p>1) If possible, convert the denominator to 10, 100, or 1000.</p> $\frac{3}{5} = \frac{6}{10} = 0.6$ $\frac{3}{50} = \frac{6}{100} = 0.06$ $\frac{13}{20} = \frac{65}{100} = 0.65$ $\frac{2}{500} = \frac{4}{1000} = 0.004$ $\frac{273}{500} = \frac{546}{1000} = 0.546$	<p>2) If the denominator will not convert easily, use long division.</p> <p>Take the answer to the thousandths place.</p> $\frac{3}{8} = 8 \overline{) 3.000} = 0.375$ $\begin{array}{r} .375 \\ 8 \overline{) 3.000} \\ \underline{24} \\ 60 \\ \underline{56} \\ 40 \\ \underline{40} \\ 0 \end{array}$	<p>3) Some conversions are easiest if memorized.</p> $\frac{1}{3} = .333 \text{ repeating}$ $\frac{2}{3} = .667 \text{ repeating}$
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Converting Decimals to Fractions

Use the appropriate denominator (10, 100, 1000 or 10,000) and reduce.

$.5 = \frac{5}{10} = \frac{1}{2}$	$.34 = \frac{34}{100} = \frac{17}{50}$	$.784 = \frac{784}{1000} = \frac{98}{125}$
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Converting Between Fractions and Decimals II

$$\textcircled{1} \frac{6}{10} = \underline{\hspace{2cm}} \quad \textcircled{2} \frac{15}{20} = \underline{\hspace{2cm}} \quad \textcircled{3} \frac{453}{1000} = \underline{\hspace{2cm}}$$

$$\textcircled{4} \frac{2}{3} = \underline{\hspace{2cm}} \quad \textcircled{5} \frac{16}{50} = \underline{\hspace{2cm}} \quad \textcircled{6} \frac{3}{5} = \underline{\hspace{2cm}}$$

$$\textcircled{7} \frac{3}{100} = \underline{\hspace{2cm}} \quad \textcircled{8} \frac{42}{50} = \underline{\hspace{2cm}} \quad \textcircled{9} \frac{6}{8} = \underline{\hspace{2cm}}$$

$$\textcircled{10} \frac{27}{40} = \underline{\hspace{2cm}} \quad \textcircled{11} \frac{24}{100} = \underline{\hspace{2cm}} \quad \textcircled{12} \frac{3}{4} = \underline{\hspace{2cm}}$$

$$\textcircled{13} \frac{6}{20} = \underline{\hspace{2cm}} \quad \textcircled{14} \frac{7}{100} = \underline{\hspace{2cm}} \quad \textcircled{15} \frac{2}{8} = \underline{\hspace{2cm}}$$

$$\textcircled{16} \frac{63}{100} = \underline{\hspace{2cm}} \quad \textcircled{17} \frac{1}{3} = \underline{\hspace{2cm}} \quad \textcircled{18} \frac{20}{40} = \underline{\hspace{2cm}}$$

$$\textcircled{19} \frac{16}{40} = \underline{\hspace{2cm}} \quad \textcircled{20} \frac{4}{20} = \underline{\hspace{2cm}} \quad \textcircled{21} \frac{7}{8} = \underline{\hspace{2cm}}$$

$$\textcircled{22} \frac{43}{100} = \underline{\hspace{2cm}} \quad \textcircled{23} \frac{31}{40} = \underline{\hspace{2cm}} \quad \textcircled{24} \frac{97}{100} = \underline{\hspace{2cm}}$$

Converting Between Fractions and Decimals II

$$\textcircled{1} \quad 0.333 = \underline{\hspace{2cm}} \qquad \textcircled{2} \quad 0.25 = \underline{\hspace{2cm}} \qquad \textcircled{3} \quad 0.125 = \underline{\hspace{2cm}}$$

$$\textcircled{4} \quad 0.5 = \underline{\hspace{2cm}} \qquad \textcircled{5} \quad 0.5 = \underline{\hspace{2cm}} \qquad \textcircled{6} \quad 0.766 = \underline{\hspace{2cm}}$$

$$\textcircled{7} \quad 0.667 = \underline{\hspace{2cm}} \qquad \textcircled{8} \quad 0.413 = \underline{\hspace{2cm}} \qquad \textcircled{9} \quad 0.75 = \underline{\hspace{2cm}}$$

$$\textcircled{10} \quad 0.09 = \underline{\hspace{2cm}} \qquad \textcircled{11} \quad 0.25 = \underline{\hspace{2cm}} \qquad \textcircled{12} \quad 0.522 = \underline{\hspace{2cm}}$$

$$\textcircled{13} \quad 0.51 = \underline{\hspace{2cm}} \qquad \textcircled{14} \quad 0.375 = \underline{\hspace{2cm}} \qquad \textcircled{15} \quad 0.2 = \underline{\hspace{2cm}}$$

$$\textcircled{16} \quad 0.875 = \underline{\hspace{2cm}} \qquad \textcircled{17} \quad 0.9 = \underline{\hspace{2cm}} \qquad \textcircled{18} \quad 0.8 = \underline{\hspace{2cm}}$$

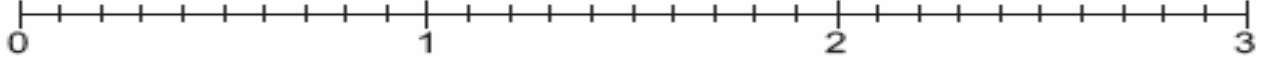
$$\textcircled{19} \quad 0.569 = \underline{\hspace{2cm}} \qquad \textcircled{20} \quad 0.993 = \underline{\hspace{2cm}} \qquad \textcircled{21} \quad 0.65 = \underline{\hspace{2cm}}$$

$$\textcircled{22} \quad 0.4 = \underline{\hspace{2cm}} \qquad \textcircled{23} \quad 0.625 = \underline{\hspace{2cm}} \qquad \textcircled{24} \quad 0.694 = \underline{\hspace{2cm}}$$

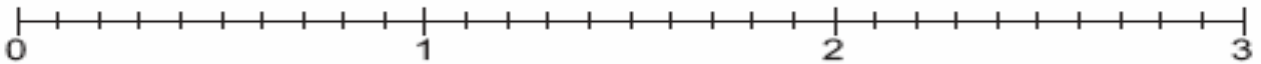
Graphing and Comparing Fractions and Decimals

Graph each group of points on the corresponding number line.

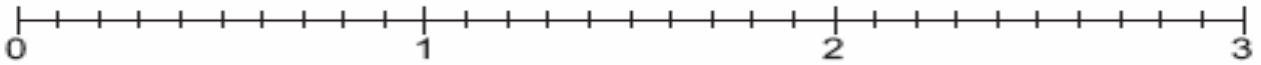
1 $A = \frac{7}{5}$ $B = 0.200$ $C = 2.40$ $D = \frac{15}{5}$



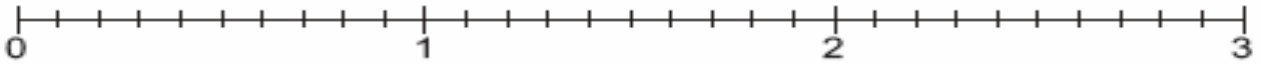
2 $A = \frac{29}{10}$ $B = 0.70$ $C = 1.40$ $D = \frac{1}{5}$



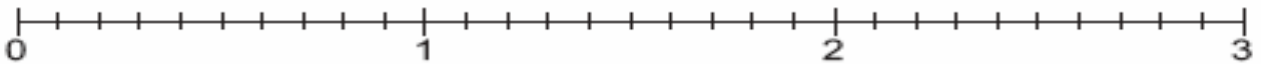
3 $A = \frac{18}{9}$ $B = 2.4$ $C = 0.8$ $D = \frac{24}{20}$



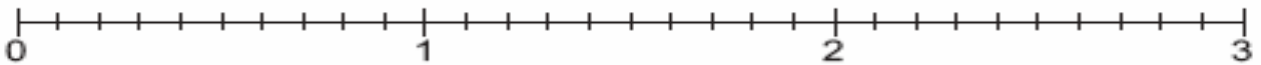
4 $A = \frac{8}{5}$ $B = 2.6$ $C = 3.00$ $D = \frac{1}{10}$



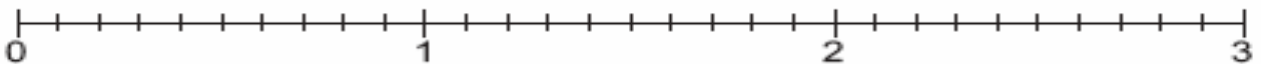
5 $A = \frac{23}{10}$ $B = 1.70$ $C = 0.60$ $D = \frac{30}{30}$



6 $A = \frac{11}{10}$ $B = 2.1$ $C = 0.4$ $D = \frac{14}{5}$



7 $A = \frac{28}{10}$ $B = 1.9$ $C = 0.3$ $D = \frac{11}{5}$



Multiplying and Dividing Decimals

¹ $1,000.0 \times 0.486 =$	¹¹ $100.00 \times 76.6 =$
² $79,436 \div 10,000 =$	¹² $69,555 \div 1,000.0 =$
³ $17,384 \div 100.00 =$	¹³ $50,293 \div 1,000.0 =$
⁴ $1,000.0 \times 0.61 =$	¹⁴ $1,000.0 \times 0.96 =$
⁵ $1,000.0 \times 0.47 =$	¹⁵ $10,000 \times 935.6 =$
⁶ $100.00 \times 7.457 =$	¹⁶ $1,000.0 \times 88.3 =$
⁷ $1,000.0 \times 3.9 =$	¹⁷ $10.000 \times 0.115 =$
⁸ $2,134 \div 100.00 =$	¹⁸ $81,721 \div 1,000.0 =$
⁹ $90,008 \div 10.000 =$	¹⁹ $31,206 \div 100.00 =$
¹⁰ $746 \div 10.000 =$	²⁰ $425 \div 10,000 =$

¹ $\begin{array}{r} 2.7 \\ \times 34.5 \\ \hline \end{array}$	⁵ $\begin{array}{r} .139 \\ \times 0.11 \\ \hline \end{array}$
² $\begin{array}{r} 0.95 \\ \times 9.8 \\ \hline \end{array}$	⁶ $\begin{array}{r} 4.89 \\ \times 27.4 \\ \hline \end{array}$
³ $4000 \div .25$	⁷ $12.005 \div 0.05$
⁴ $228.942 \div 2.3$	⁸ $75.6 \div 1.4$

Operations with Metric and US Measures

All final answers should be in the largest possible unit.

1) $\begin{array}{r} 21 \text{ lb } 14 \text{ oz} \\ + 12 \text{ lb } 15 \text{ oz} \\ \hline \end{array}$	6) $\begin{array}{r} 11 \text{ gal } 3 \text{ qt} \\ 5 \\ \hline \end{array}$
2) $\begin{array}{r} 5 \text{ lb } 4 \text{ oz} \\ \times \quad \quad 2 \\ \hline \end{array}$	7) $\begin{array}{r} 55 \text{ min } 25 \text{ sec} \\ + 25 \text{ min } 40 \text{ sec} \\ \hline \end{array}$
3) $\begin{array}{r} 5 \text{ ft } 6 \text{ in} \\ - 3 \text{ ft } 10 \text{ in} \\ \hline \end{array}$	8) $\begin{array}{r} 5 \text{ ft } 10 \text{ in} \\ 3 \\ \hline \end{array}$
4) $\begin{array}{r} 7 \text{ hr } 20 \text{ min} \\ \times \quad \quad 3 \\ \hline \end{array}$	9) $\begin{array}{r} 7 \text{ km } 454\text{m} \\ - 2 \text{ km } 600\text{m} \\ \hline \end{array}$
5) $\begin{array}{r} 2 \text{ T } 100 \text{ lb} \\ 5 \\ \hline \end{array}$	10) $\begin{array}{r} 6\text{T } 600 \text{ lbs} \\ + 4\text{T } 1700 \text{ lbs} \\ \hline \end{array}$

Operations with Metric and US Measures

All final answers should be in the largest possible unit.

1) Peter has 25 yd 2 ft of cloth to be split into 7 pieces.
How long is each piece?

2) Maria ran 2 km 600 m less than Kelly who ran 8 km 400 m.
How far did Maria run?

3) Dora is 7 years 34 weeks and 5 days old.
How old will she be in 9 years 22 weeks and 4 days?

4) Jeff ran 9 km 900 m total during 11 different days. What was his average daily run?

5) Mark plowed 4 yd 2 ft of his field every day for 2 weeks. How much did he plow total?

Order of Operations I

PEMDAS

P	Parentheses
E	Exponents
M	Multiplication & Division are on the same level. Do whichever comes first moving left to right.
D	
A	Addition & Subtraction are on the same level. Do whichever comes first moving left to right.
S	

1)	$(6 + 9) \times (3 + 1)$	2)	$8 + 2 \times 3 - 1$
parentheses	15×4	multiply	$8 + 6 - 1$
multiply	60	add	$14 - 1$
		subtract	13

3)	$6 + (2 + 8)^2$	4)	$2 + 4^2 + 3 \times 4 - 6$
parentheses	$6 + (10)^2$	exponent	$2 + 16 + 3 \times 4 - 6$
exponent	$6 + 100$	multiply	$2 + 16 + 12 - 6$
add	106	add	$18 + 12 - 6$
		add	$30 - 6$
		subtract	24

5)	$32/8 + 3 \times 2$	6)	$8 + (36/12)^2 / 3 - 4$
divide	$4 + 3 \times 2$	parentheses	$8 + 3^2 / 3 - 4$
multiply	$4 + 6$	exponent	$8 + 9/3 - 4$
add	10	divide	$8 + 3 - 4$
		add	$11 - 4$
		subtract	7

Order of Operations I

Order of Operations : PEMDAS 1) Parentheses 2) Exponents 3) Multiplication/Division (left to right) 4) Addition/Subtraction (left to right)	
$1 \quad (8 + 7) \times (6 + 2) =$	$10 \quad 14 \div 7 + 6 \times 8 =$
$2 \quad (4 + 7) \times (8 + 5) =$	$11 \quad (7 + 4) \times (2 + 5) =$
$3 \quad 9 \times 4 \div 3 - 5 =$	$12 \quad (1 + 6) \div 7$
$4 \quad 3 \div 3 + 9 \times 8 =$	$13 \quad (1 + 7) \times (8 + 5) =$
$5 \quad (5 + 6)^2 =$	$14 \quad (2 + 4)^2 + (1 + 3)^2 =$
$6 \quad (9 \times 3) - (4 + 1) =$	$15 \quad 2 + 3^2 + 4 + 7^2 =$
$7 \quad 1 + 6^2 + 3 + 8^2 =$	$16 \quad (4 + 5)^2 + (2 + 8)^2 =$
$8 \quad 9 \div 3 + 8^2 =$	$17 \quad 2 \div 1 + 6 \times 8 =$
$9 \quad 8^2 + 2 \times 9 - 5 =$	$18 \quad 9 \times 5 \div 3 - 6 =$

ADDING & SUBTRACTING INTEGERS

<p>If they have the SAME SIGN</p> <p>---- find the SUM</p> <p>---- ADD</p>	<p>If the numbers have the same sign, take the sum of the numbers, and give the answer the sign of both numbers.</p>	<p>Ex: $2 + 5 = 7$</p> <p>$-2 - 5 = -7$</p> <p>$-2 + (-5) = -7$</p> <p>$-3 - 6 = -9$</p> <p>$3 + 6 = 9$</p>
<p>If they have DIFFERENT SIGNS</p> <p>---- find the DIFFERENCE</p> <p>---- SUBTRACT</p>	<p>If the numbers have different signs, take the difference (subtract) and give the answer the sign of the larger number.</p>	<p>Ex: $5 - 2 = 3$</p> <p>$-5 + 2 = -3$</p> <p>$2 - 5 = -3$</p> <p>$2 + (-5) = -3$</p> <p>$-2 + 5 = 3$</p>
<p>DOUBLE NEGATIVES - -</p> <p>CANCEL EACH OTHER + +</p>	<p>If two negatives are right next to each other (not separated), then they cancel to a positive.</p>	<p>Ex:</p> <p>$2 - (-5) = 2 + 5 = 7$</p> <p>$2 - - 5 = 2 + 5 = 7$</p> <p>$-2 - (-5) = -2 + 5 = 3$</p>

Examples:

1) $-12 + (-16)$ -28	2) $-5 + (-12)$ -17	3) $-6 - -9$ $-6 + 9$ 3	4) $-18 + 7$ -11
5) $-7 - (-26)$ $-7 + 26$ 19	6) $-4 - 8$ -12	7) $-6 + 14$ 8	8) $-17 - 3$ -20

Adding and Subtracting Integers I

If the numbers have the same sign, take the sum or add and give the sign of the numbers.

If the numbers have the different signs, take the difference or subtract and give the sign of the larger number.

If 2 negative signs are together, they change into one positive sign.

$① \quad 18 - 25 = \underline{\hspace{2cm}}$

$⑰ \quad 30 + 14 = \underline{\hspace{2cm}}$

$③③ \quad 6 - 8 = \underline{\hspace{2cm}}$

$② \quad 11 - 17 = \underline{\hspace{2cm}}$

$⑱ \quad 9 - 18 = \underline{\hspace{2cm}}$

$③④ \quad -3 - 21 = \underline{\hspace{2cm}}$

$③ \quad 4 - 21 = \underline{\hspace{2cm}}$

$⑲ \quad 24 + -5 = \underline{\hspace{2cm}}$

$③⑤ \quad -19 + 5 = \underline{\hspace{2cm}}$

$④ \quad -11 + -1 = \underline{\hspace{2cm}}$

$⑳ \quad -15 + 23 = \underline{\hspace{2cm}}$

$③⑥ \quad -20 - -3 = \underline{\hspace{2cm}}$

$⑤ \quad 15 - 10 = \underline{\hspace{2cm}}$

$㉑ \quad 22 - -26 = \underline{\hspace{2cm}}$

$③⑦ \quad 28 - 29 = \underline{\hspace{2cm}}$

$⑥ \quad -15 - -23 = \underline{\hspace{2cm}}$

$㉒ \quad -21 + -26 = \underline{\hspace{2cm}}$

$③⑧ \quad 2 + -20 = \underline{\hspace{2cm}}$

$⑦ \quad -27 + -15 = \underline{\hspace{2cm}}$

$㉓ \quad -11 - 5 = \underline{\hspace{2cm}}$

$③⑨ \quad 17 - 24 = \underline{\hspace{2cm}}$

$⑧ \quad 7 + -13 = \underline{\hspace{2cm}}$

$㉔ \quad 24 + -4 = \underline{\hspace{2cm}}$

$④⑩ \quad -24 + 29 = \underline{\hspace{2cm}}$

$⑨ \quad 12 + 12 = \underline{\hspace{2cm}}$

$㉕ \quad -10 - 26 = \underline{\hspace{2cm}}$

$④① \quad 6 + 26 = \underline{\hspace{2cm}}$

$⑩ \quad 21 - 10 = \underline{\hspace{2cm}}$

$㉖ \quad 13 + -12 = \underline{\hspace{2cm}}$

$④② \quad -27 + 27 = \underline{\hspace{2cm}}$

$⑪ \quad -8 - 29 = \underline{\hspace{2cm}}$

$㉗ \quad -8 - -14 = \underline{\hspace{2cm}}$

$④③ \quad 20 + 9 = \underline{\hspace{2cm}}$

$⑫ \quad -20 + -6 = \underline{\hspace{2cm}}$

$㉘ \quad -13 - -13 = \underline{\hspace{2cm}}$

$④④ \quad 1 - 15 = \underline{\hspace{2cm}}$

$⑬ \quad -14 - -11 = \underline{\hspace{2cm}}$

$㉙ \quad 16 - -12 = \underline{\hspace{2cm}}$

$④⑤ \quad -29 - 30 = \underline{\hspace{2cm}}$

$⑭ \quad -25 - 0 = \underline{\hspace{2cm}}$

$③⑩ \quad -15 + -17 = \underline{\hspace{2cm}}$

$④⑥ \quad -20 - 5 = \underline{\hspace{2cm}}$

$⑮ \quad -15 + 29 = \underline{\hspace{2cm}}$

$③① \quad -11 + 30 = \underline{\hspace{2cm}}$

$④⑦ \quad -17 + 0 = \underline{\hspace{2cm}}$

$⑯ \quad 14 + 30 = \underline{\hspace{2cm}}$

$③② \quad 18 + -12 = \underline{\hspace{2cm}}$

$④⑧ \quad 23 + -24 = \underline{\hspace{2cm}}$

Order of Operations II

Order of Operations : PEMDAS 1) Parentheses 2) Exponents 3) Multiplication/Division (left to right) 4) Addition Subtraction (left to right)	
¹ $-3 - 9 \times 7 + 3^2 =$	⁹ $(-13 + 6) \times (-2 - 15) =$
² $-2 + (60 \div -5)^2 =$	¹⁰ $(7 - 11) \times (-14 - 12) =$
³ $-7 - 4 \times 2 - 15 =$	¹¹ $5 \times 9 \div -15 - -3 =$
⁴ $3 - 10 \times -4 - -1 =$	¹² $6 + (-6 \div -2)^3 =$
⁵ $9 \div -3 \times -14 =$	¹³ $-4 - -6 \times -11 + 5^2 =$
⁶ $8 \div 5 - 3 \times -14 =$	¹⁴ $-(-9^2) =$
⁷ $-10 \times -2 \div 2 =$	¹⁵ $108 \div -9 + 2^3 =$
⁸ $(-7 + -8) \times (-9 + -3) =$	

Adding and Subtracting Rational Numbers III - Mixed Numbers

$$1) -4\frac{3}{8} + 1\frac{5}{12} =$$

$$2) 4\frac{3}{8} - \left(-1\frac{5}{12}\right) =$$

$$3) -1\frac{5}{12} + 4\frac{3}{8} =$$

$$4) -6\frac{4}{5} + 2\frac{1}{9} =$$

$$5) -6\frac{4}{5} - 2\frac{1}{9} =$$

$$6) -2\frac{1}{9} - \left(-6\frac{4}{5}\right) =$$

$$7) 3\frac{3}{4} - 9\frac{2}{7} =$$

$$8) -9\frac{2}{7} - 3\frac{3}{4} =$$

$$9) -3\frac{3}{4} + 9\frac{2}{7} =$$

$$10) 3\frac{3}{4} - \left(-9\frac{2}{7}\right) - 1\frac{11}{28} =$$

Probability and Percentage

Name _____

You have a standard deck of cards with 52 cards.

If you pick one card, find the probability of:

1. P(a King or a Jack) =	6. P(a Black Queen of Hearts) =
2. P(an 8 or a 9) =	7. P(a Red Jack or a Club) =
3. P(Not a Diamond) =	8. P(Not a Black 3) =
4. P(a Black) =	9. P(Not a Spade) =
5. P(a Red or a Black) =	10. P(a King or a Red Jack of Spades) =

If you pick two cards, find the probability of:

a) With Replacement	b) Without Replacement
11. P(2 Hearts) =	
12. P(Not a Red and a Heart) =	
13. P(a 2 and a Black Jack) =	
14. P(a Red 4 and a 4 of Clubs) =	