

Expanding Brackets

3 (6x + 2) means 3 times everything in the bracket

$6x + 2$ + $6x + 2$ + $6x + 2$
 $= 18x + 6$

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$\frac{3}{4}$ — Numerator
 — Denominator

Proper fraction = $\frac{3}{4}$
 (top smaller than bottom)

Improper fraction = $\frac{10}{4}$
 (top larger than bottom)

Mixed Number = $2\frac{1}{2}$

FRACTIONS

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ALGEBRA



$$4y + 6 = 18$$

$$4y + 6 - 6 = 18 - 6$$

$$4y = 12$$

$$y = \frac{12}{4}$$

$$y = 3$$

What you do on one side of the Equal Sign you must do to the other side

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Simplifying Fractions

Make your fraction as simple as possible

$\frac{3}{6}$
 $\frac{2}{4}$
 $\frac{1}{2}$

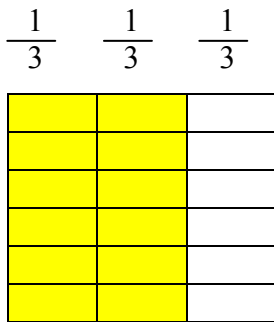
I want $\frac{3}{12}$

I want $\frac{1}{4}$



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$$\frac{2}{3} \text{ of } 18 = 12$$



Divide by the Bottom
Multiply by the Top

$$18 \div 3 = 6$$

$$6 \times 2 = 12$$

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FRACTIONS

SUBTRACTION
same method -
only a MINUS
sign

ADD

$$\frac{2}{3} + \frac{3}{4}$$

X4 X3

$$\frac{8}{12} + \frac{9}{12}$$

Only add the Tops! = $\frac{17}{12}$ = $1\frac{5}{12}$

Adding fractions-
you must make an
equivalent fraction
with the same
denominator

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Multiplication

Multiply nominators &
multiply denominators
(tops and bottoms)

$$\frac{2}{5} \times \frac{3}{4} = \frac{6}{20} = \frac{3}{10}$$

2 times 3
5 times 4

FRACTIONS

Division

$$\frac{4}{5} \div \frac{2}{3}$$

Change \div to \times

Change $\frac{2}{3}$ to $\frac{3}{2}$

$$\frac{4}{5} \times \frac{3}{2} = \frac{12}{10} = 1\frac{2}{10} = 1\frac{1}{5}$$

CONTINUE AS FOR
MULTIPLICATION

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DECIMALS

ADD Line up Decimal Points and Add

$$4.03 + 23.6 = 26.63$$

SUBTRACT- Line up Decimal points and subtract

MULTIPLY- multiply ignoring the decimal point but
add the point back to answer (Number of figures after points
in question = Number of figures after point in answer)

$$6.2 \times .3 = 1.86$$

DIVIDE-Always divide by whole number-(convert the
number you are dividing by to a whole number first, by **shifting the
decimal point of both numbers** the same number of places to the right:

$$6.55 \div 0.5 = 65.5 \div 5$$

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FRACTIONS TO DECIMALS

$$\frac{3}{5} \xrightarrow{\times 2} \frac{6}{10} = .6$$

$$\frac{7}{10} \xrightarrow{\times 10} \frac{70}{100} = .70$$

Or 3 DIVIDED BY 5

$$\begin{array}{r} 5 \overline{) 3.0} \\ \underline{0.6} \end{array}$$

or 7 DIVIDED BY 10

$$\begin{array}{r} 10 \overline{) 7.000} \\ \underline{0.70} \end{array}$$

The bottom figure of your new fraction must be 10 or 100



5/8 as a fraction??? The 1st method will not work
You must divide 5 by 8 = 0.625

$$\begin{array}{r} 0.625 \\ 8 \overline{) 5.000} \end{array}$$

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DECIMALS TO FRACTIONS

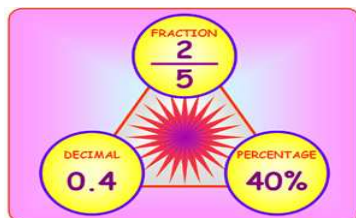
$$0.60 \text{ (2 decimal places- put it over 100)} = \frac{60}{100}$$

$$0.6 \text{ (1 decimal place- put it over 10)} = \frac{6}{10}$$

$$\text{Then cancel down } \frac{6}{10} = \frac{3}{5}$$

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Decimals / Fractions to Percentages



To convert a fraction or decimal to a percentage, **multiply by 100**.

$$\frac{3}{5} = \frac{3}{5} \times 100 = \frac{300}{5} = 60\%$$

$$0.65 = 0.65 \times 100 = 65\%$$

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Percentages

means out of 100



20% of £10.

$$\frac{20}{100} \times \frac{10}{1} = £2.00$$

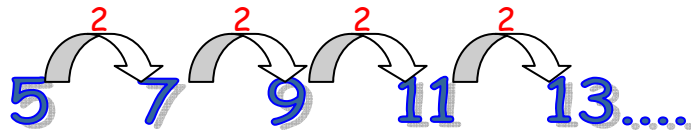
CD costs £8.00 (£10.00 less 20%)

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Finding the nth term

Common difference = $dn + (a-d)$

- a is the 1st term in the sequence
- d is the common difference
- n is the nth term



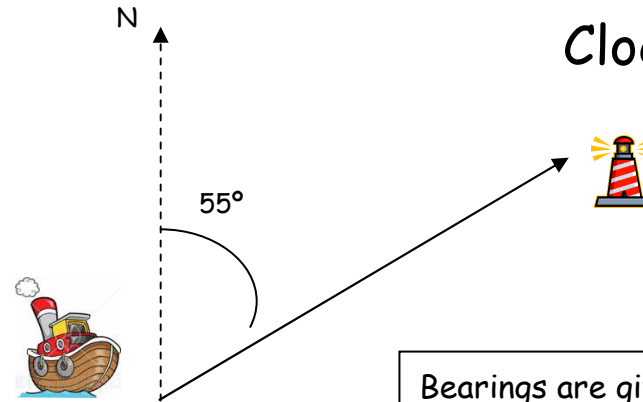
a = 5, d = 2, in the formula $dn + (a-d)$
 $2n + (5-2)$ nth term is $2n + 3$

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1	2	3	4	5	6	7	8	9	10	11	12
2	4	6	8	10	12	14	16	18	20	22	24
3	6	9	12	15	18	21	24	27	30	33	36
4	8	12	16	20	24	28	32	36	40	44	48
5	10	15	20	25	30	35	40	45	50	55	60
6	12	18	24	30	36	42	48	54	60	66	72
7	14	21	28	35	42	49	56	63	70	77	84
8	16	24	32	40	48	56	64	72	80	88	96
9	18	27	36	45	54	63	72	81	90	99	108
10	20	30	40	50	60	70	80	90	100	110	120
11	22	33	44	55	66	77	88	99	110	121	132
12	24	36	48	60	72	84	96	108	120	132	144

Bearings

From
North Line
Clockwise



Bearings are given to 3 figures
 $55^\circ = 055^\circ$

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