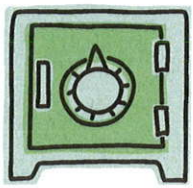
1) Bailey's safe combination is three consecutive numbers (lowest to highest) that add up to 54. What is the combination?



$(n)+(n+1)+(n+2)$

$n+n+1+n+2$

$3n+3=54$

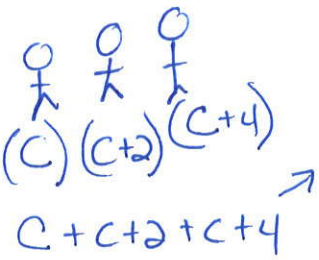
$-3 \quad -3$

$\frac{3n}{3}=\frac{51}{3}$

$n=17$

17, 18, 19

2) In 2052, Rocky will have three children with consecutive even integers that add up to 54. How old are Rocky's children?



$(C)(C+2)(C+4)$

$C+C+2+C+4$

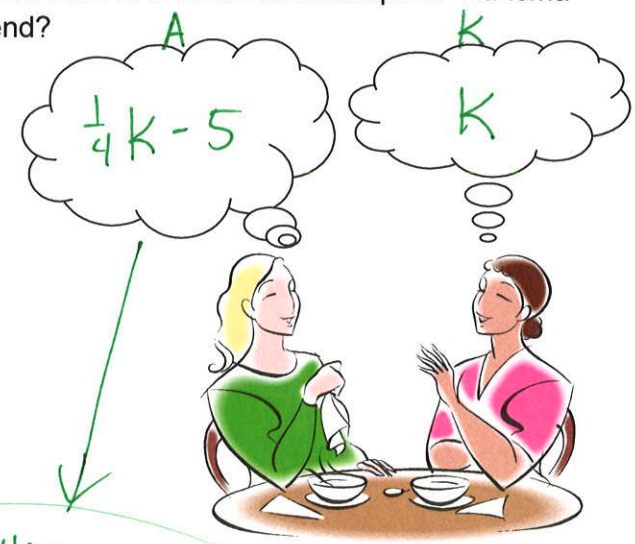
$3C+6=54$

$-6 \quad -6$

$\frac{3C}{3}=\frac{48}{3}$

$C=16$

3) Allie and Karisma went out for dinner. Allie spent \$5.00 less than ¼ of what Karisma spent. Karisma and Allie together spent \$76.25. How much did each spend?



$1\frac{1}{4}K-5=76.25$

$\frac{5}{4}K-5=76.25$

$+5 \quad +5.00$

$\frac{\cancel{4}}{\cancel{5}}\cdot\frac{\cancel{5}}{\cancel{4}}K=\frac{81.25}{1}\cdot\frac{4}{5}$

$K=65$

Allie

$\frac{1}{4}\cdot 65-5=11.25$

4)

Autumn's dad is five years less than seven times Autumn's age. Together they are 43. How old is Autumn? How old is her dad?

Dad: $7A-5$ + Autumn: A = 43

$8A-5=43$

$+5 \quad +5$

$\frac{8A}{8}=\frac{48}{8}$

$A=6$

Autumn is 6

$7\cdot6-5=37$

Dad is 37

$37+6=43$

5) Isiah spent $27.00 more than 1/3 of what Drew spent at a sports store. Drew spent $87.00. How much did Isiah spend?

$I=\frac{1}{3}D+27$

$I=\frac{1}{3}\cdot 87+27$

$I=\$56$

6) Caleb and Austin are in charge of hiring the caterer for the family reunion. They would like Cathy's Catering to provide the desserts (cakes and pies) and Kellie's Kitchen to make the meal (potato salad, corn on the cob, with ribs and barbeque chicken). Cathy's Catering charges $40.00 more than 5/8 of Kellie's Kitchen. The entire cost of the food is $1,210.00. How much will each company be paid?

Cathy's C.: $\frac{5}{8}K+40$ + Kellie's K: K = 1,210

$1\frac{5}{8}K+40=1$

$\frac{13}{8}K+40=1210$

$-40 \quad -40$

$\frac{8}{13}\cdot\frac{13}{8}K=1170\cdot\frac{8}{13}$

$K=\$720$

$\frac{5}{8}\cdot 720+40=\$490$

$490+720=1210$

☺

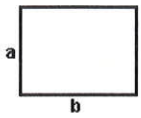
Perimeter is the distance around – like putting a fence around a field.

Area is what is inside the fence… like the grass that the cows want to eat.

Area and Perimeter Formulas

Rectangle

A Rectangle is a quadrilateral with four equal angles at 90°.

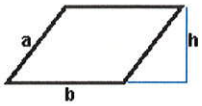


Area = ab

Perimeter = 2(a + b)

Parallelogram

A Parallelogram is a quadrilateral with opposite sides parallel.

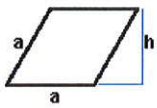


Area = bh

Perimeter = 2(a + b)

Rhombus

A Rhombus is a Parallelogram with all sides equal.

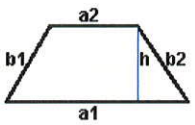


Area = ah

Perimeter = 4a

Trapezoid

A Trapezoid is a Quadrilateral with at least one pair of parallel sides.



Area = $\frac{a1 + a2}{2}h$

Perimeter = a1 + a2 + b1 + b2

Formulas for a square:

$A_{\square} = s^2$

$P_{\square} = 4s$

1	2	3	4	5
1	2	3	4	5
2				
6	7	8	9	10
3				
11	12	13	14	15
4				
16	17	18	19	20
5				
21	22	23	24	25
6				
26	27	28	29	30
7				
31	32	33	34	35
8				
36	37	38	39	40
9				
41	42	43	44	45

Formulas for a triangle:

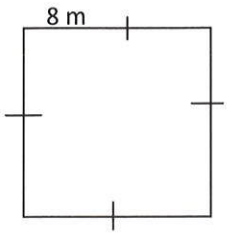
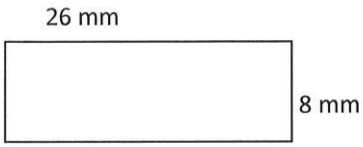
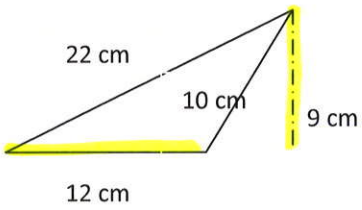
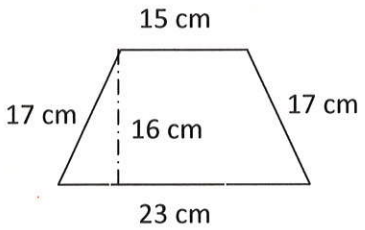
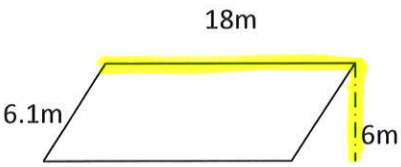
$A_{\triangle} = \frac{1}{2}bh$

$P_{\triangle} = s + s + s$

$$A_{\square} = lw$$
$$= 9 \cdot 5$$
$$= 45 \text{ un}^2$$

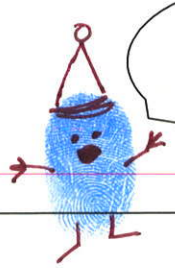
$$P_{\square} = 2(l + w)$$
$$= 2(9 + 5)$$
$$= 28 \text{ un}$$

F formula
S sing
S solve
L label

Shape	Area	Perimeter
	$A_{\square} = s^2$ $= 8^2$ $= 64\ m^2$	$P_{\square} = 4s$ $= 8 \cdot 4$ $= 32\ m$
	$A_{\square} = lw$ $= 26 \cdot 8$ $= 208\ mm^2$	$P_{\square} = 2(l+w)$ $= 2 \cdot (26+8)$ $= 68\ mm$
	$A_{\triangle} = \frac{1}{2}bh$ $= .5 \times 12 \times 9$ $= 54\ cm^2$	$P_{\triangle} = s + s + s$ $= 22 + 12 + 10$ $= 44\ cm$
	$A_{\square} = \frac{a1+a2}{2}h$ $= \frac{15+23}{2} \cdot 16$ $= 199\ cm^2$	$P_{\square} = s+s+s+s$ $= 15+17+17+23$ $= 72\ cm$
	$A_{\square} = bh$ $= 18 \cdot 6$ $= 108\ m^2$	$P_{\square} = 2(a+b)$ $= 2(18+6.1)$ $= 48.2m$

$3m + 4k - 12 + m - 6k - 10$

$4m - 2k - 22$



$-7 - 2j + 10d - 5j + 4d + 11$

$4 - 7j + 14d$

5-2 Equations with Variables on BOTH Sides!

* You need to make good variable decisions!!

$7y + 8 = 4y - 10$

* It is easier to subtract 4y from both sides than to subtract 7y from both sides.

$7y + 8 = 4y - 10$
$-4y \quad\quad -4y$
$3y + 8 = -10$
$-8 \quad\quad -8$

So... the variable is going to end up on the left side this time.

↖ Now subtract the 8 from both sides.

$\frac{3y}{3} = \frac{-18}{3}$

The last step is to divide by 3 on both sides.

$y = -6$

Don't forget to check your work!

$7 \cdot -6 + 8 = 4 \cdot -6 - 10$
$-42 + 8 = -24 - 10$
$-34 = -34$

THIS IS SHOWN W/O USING A CALCULATOR. YOU MAY USE YOUR CALCULATOR ☺.

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Sample:

$2x + 3 = 3x - 2$

Decision time! Subtract $2x$ from both sides or $3x$ from both sides?

$2x + 3 = 3x - 2$

$-2x \quad -2x$

$3 = x - 2$

This variable ends up on the right side.

$3 = x - 2$

$+2 \quad +2$

$5 = x$

Now check your work ☺

$2 \cdot 5 + 3 = 3 \cdot 5 - 2$

$13 = 13$

Your turn:

$5p + 15 = p - 49$

Decision time! Subtract $5p$ from both sides or $1p$ from both sides?

$5p + 15 = 1p - 49$

Your variable ends up on the _____ side.

Now check your work ☺

$5 \cdot$ [redacted] $+ 15 =$ [redacted] $- 49$

[redacted] $=$ [redacted]

5-3 Inequalities

The book costs less than $20.00 $b < \$20$

You must be at least 48" to go on the ride. $g \geq 48"$

Signs

$>$	$\geq$
greater than	greater than or equal to
$<$	$\leq$
less than	less than or equal to

Is the inequality true? Check it out!

$2t + 8 > 7$; $t = -1$ ← replace the variable
$2 \cdot -1 + 8 > 7$
$-2 + 8 > 7$
$6 \not> 7$ ← Not true!

$p - 42 \leq -2$; $p = 40$ ← replace the variable
$40 - 42 \leq -2$
$-2 \leq -2$ ← true ☺

Your turn! $3 + x \leq 12$; $x = 6$ $y - 7 < 10$; $y = 17$

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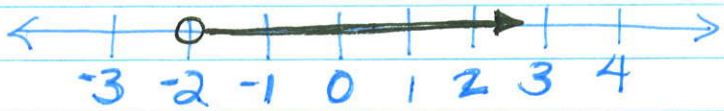
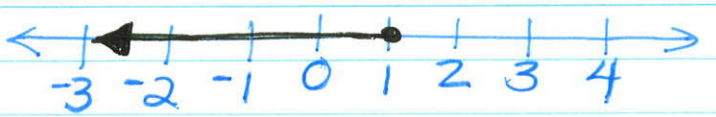
Graphing inequalities:



$x > -2$



$x \leq 1$

5-4 Solving Inequalities

$3 \geq g + 7$
$-7 \quad -7$
$-4 \geq g$
$g \leq -4$

"snake" the variable over to the left

$\frac{2}{7} \cdot \frac{7}{2} y > \frac{9}{1}63 \cdot \frac{2}{7_1}$

$y > 18$

$t - 6 \leq 2.5$
$+6 \quad +6.0$
$t \leq 8.5$