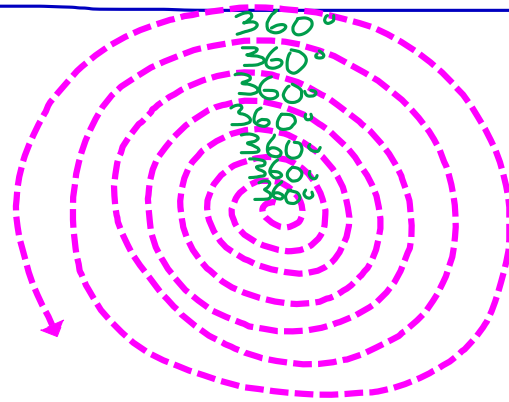


2006 Olympics Snowboarding

Lesson
includes
long multi-
plication &
division



How
many
rotations
can you
achieve?

* Each full rotation
is 360° (the Babylonians
believed that there were
360 days in a year)

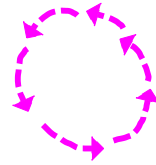
* If they used $365\frac{1}{4}^\circ$
for a full rotation, the men
would be doing $1095\frac{3}{4}^\circ$

* doesn't sound as cool
as a 1080° (3 rotations)

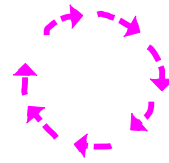
# of Rotations	Degree°	Visual
$\frac{1}{4}$	90°	
$\frac{1}{2}$	180°	
$\frac{3}{4}$	270°	
1	360°	
2	720°	
$2\frac{1}{2}$	900°	
3	1080°	
4	1440°	
5	1800°	
6	2160°	
7	2520°	
8	2880°	

The direction of
your turn is
Sometimes relevant

Counterclockwise



clockwise



* 180° turn ends up
in the same place no matter
which direction you turn.

* It is the same for 360°

~~■~~ 270° clockwise ends
up in the same place as
 90° counterclockwise.

Return to long multiplication

* 15 rotations times 360°

Step

1) hold the zero until the end

$$\begin{array}{r} \textcircled{3} \\ 36\textcircled{0} \\ * 15 \\ \hline 180 \\ + 36\textcircled{0} \\ \hline 5400 \end{array}$$

2) multiply 5 by $6 = 30$; put the zero under the 5 and carry the $\textcircled{3}$ above the 3 of 360

(next page uses arrows to explain)

3) multiply 5 times $3 = 15$ and add the carry of $\textcircled{3} = 18$; put the 8 below the 1 and carry the $\textcircled{1}$ from 18 to the left of 360 and bring down the $\textcircled{1}$

4) put a dash (some people put a zero) under the $\textcircled{0}$ below the 5 to start.

5) multiply the 1 from the 15 by $6 = 6$ and put under the 8; then multiply the 1 by $3 = 3$ and put under the 1

6) now add the two solutions and bring back the zero to the right of the $540\textcircled{0}$

7) Your answer is 5400°

① 5 * 6
 ② 5 * 3
 ③ 1 * 6
 ④ 1 * 3

~~1~~ ~~3~~
 3 6
 ④ ③ ② ①
 1 5

①
 ②
 ③
 ④

*

~~1~~ 8 0
 + 3 6
 5 4 0 0

remember
 when you
 add 8 + 6 = 14
 to carry the
 1 above the
 next left
 column.

Practice In the 2006
olympics, snowboarders can
do a 9000° jump.

* how many turns is
that jump? (answer next
page)

* Now, invent your own
future olympics and
see what degrees you get.

divided
by



$$\frac{9000}{360}$$

$$= 25$$

rotations

$$\begin{array}{r} 25 \\ \hline 36 \overline{) 900} \\ \underline{-72} \\ 180 \\ \underline{-180} \\ 0 \end{array}$$

Practice If you
can turn 33 times
on your snowboard,
what is the total degree
measure? (key on next pg.)

(answer)

Notice how each line is the same with a shift to the left

$$\begin{array}{r} \cancel{0} \\ 360 \\ * 33 \\ \hline \end{array}$$

Keep zero hold on until end.

$$\begin{array}{r} 108 \\ + 1080 \\ \hline 11,880 \end{array}$$