

Oct. 6
 3 things that affect Friction

1. Texture
 roughness - rougher = more friction
2. Pressure between the surfaces
 more pressure = more friction
3. Materials

"Two" types of Friction

Static Friction -
 not moving
 not sliding

Dynamic (Kinetic) friction -
 sliding friction

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Coefficient of friction

$f = \mu N$

Force of friction

μ
 μN

Pressure between the surfaces

copper

steel

$\mu_s = .53$

$\mu_k = .36$

$\mu \rightarrow 1$

$f_s = .53(10N)$
 $= 5.3N$

$F_k = .36(10N)$
 $= 3.6N$

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Materials	μ_s	μ_k
Steel on steel	0.74	0.57
Aluminum on steel	0.61	0.47
Copper on steel	0.53	0.36
Rubber on concrete (dry)	1.0	0.8
Rubber on concrete (wet)	0.3	0.25
Wood on wood	0.25-0.5	0.2
Glass on glass	0.94	0.4
Teflon on Teflon	0.04	0.04
Teflon on steel	0.04	0.04
Waxed wood on wet snow	0.14	0.1
Waxed wood on dry snow	0.10	0.04
Metal on metal (lubricated)	0.15	0.06
Ice on ice	0.1	0.03
Synovial joints in humans	0.01	0.003
Very rough surfaces		1.5

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How to reduce Friction
Materials
change the materials
that are rubbing
| skin |
| skin |
| skin |
| skin |

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Adding a lubricant
common lubricants
Grease
oil
wax
water
blood

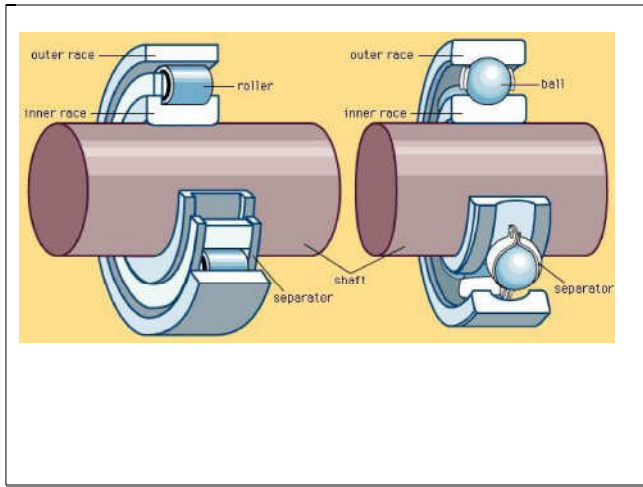
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Pressure reduce the
pressure
Take the drawers
out of the
dresser, pal.

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