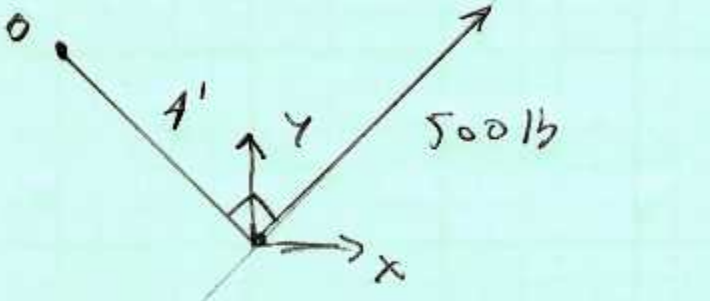
SIGN CONVENTION:



MOMENT (lb·ft) = Force (lb) * distance (ft)

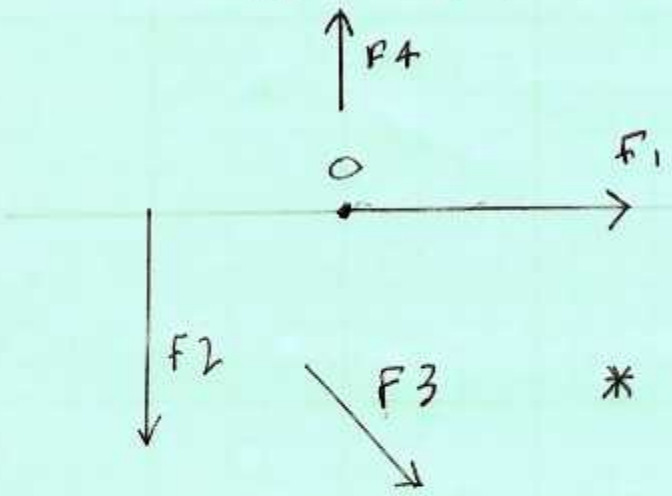
MOMENT (lb·FT) = 500 lb * 4 FT

$= {}^{(+)}2000$ lb·ft

COUNTER CLOCKWISE MOMENT (+)

Moment of a force ℓ i

Note: if the "moment arm" (i.e ⊥ distance) is zero — there is no moment!



* $\vec{F}_1$ & F_4 have no moment

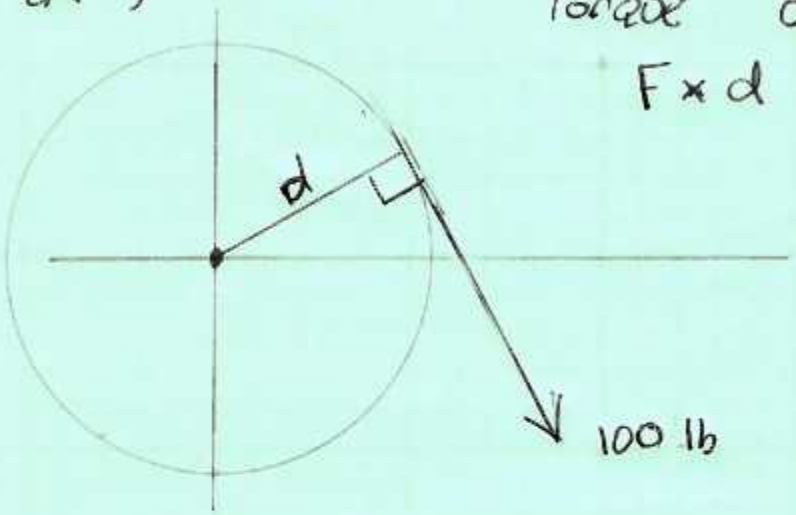
* F_2 & F_3 will have a moment

MOMENT OF A FORCE (I.E. TORQUE)

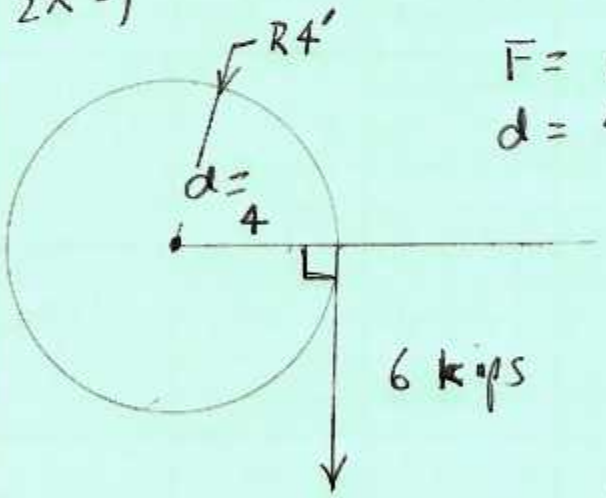
Ex 1)

"TORQUE" OR MOMENT

$F \times d$



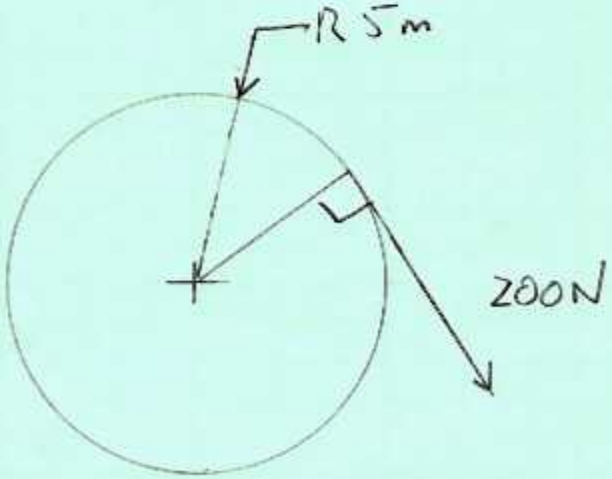
Ex 2)



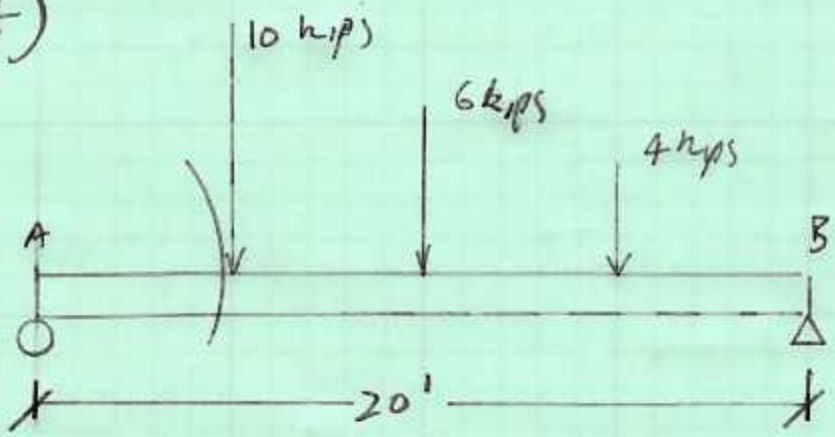
F = 6 kips

d = 4 FT

Ex 3



Ex 4)



MOMENTS ABOUT POINT "A"

10 kip force:

Moment = Force * ⊥ distance

= 10 kips * 5 ft

= ⁻ 50 kips-ft +↻

ANS

6 kip force;

Moment (kip-ft) = force * ⊥ distance

= 6 kips * 10 ft

= ⁻ 60 kips-ft +↺

ANS

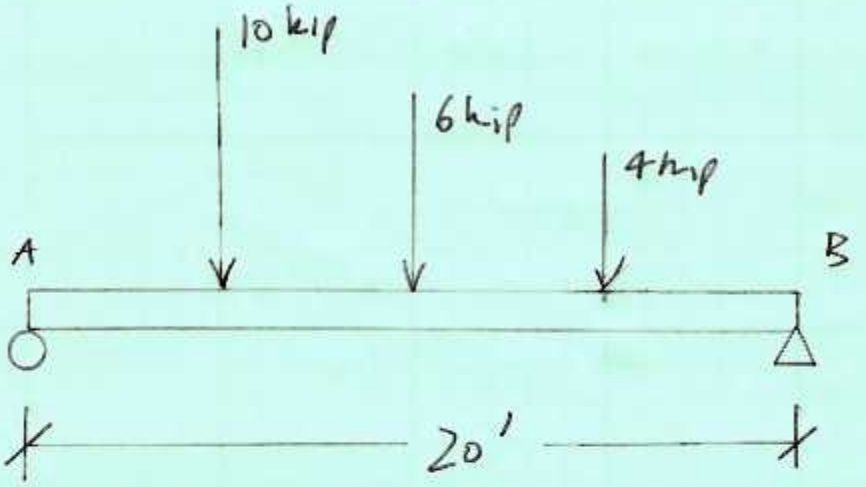
4 kip force;

Moment (kip-ft) = Force (kip) * ⊥ distance (ft)

= 4 kip * 15 ft

= −60 kips-ft ANS ↻+

Sum MOMENTS ABOUT "B"



10 kip force:

Moment (kip-ft) = Force (kip) * ⊥ distance

= 10 kip * 15 ft

= $^{+}$150 kip-ft +↻

6 kip force:

MOMENT = (6 kip)(10 ft)

= $^{+}$60 kip-ft +↺

4 kip force:

MOMENT = (4 kip)(5 ft) +↺

= $^{+}$ 20 kip-ft