1. The earth (mass = $6\cdot10^{24}\ kg$) revolves around the sun with an angular velocity of $2\cdot10^{-7}\ rad/s$ in circular orbit of radius $1.5\cdot10^{8}\ km$. The force exerted by the sun on earth in newtons is...

$m = 6\cdot10^{24}\ kg$ $\omega = 2\cdot10^{-7}\ rad/s$ $r = 1.5\cdot10^{11}\ m$	*Solution.*
$F - ?$	In case of a round trajectory, centripetal acceleration of the earth is $a = \omega^2 r$. The gravitational force, exerted by the sun, can be found from the second Newton law: $F = ma$, $\boxed{F = m\omega^2 r}$.

Let check the dimension.

$$[F] = kg\cdot\left(\frac{rad}{s^2}\right)\cdot m = kg\cdot\frac{m}{s^2} = N.$$

Let evaluate the quantity.

$$F = 6\cdot10^{24}\cdot\left(2\cdot10^{-7}\right)^2\cdot1.5\cdot10^{11} = 3.6\cdot10^{22}\,(N).$$

Answer: $3.6\cdot10^{22}\ N$.