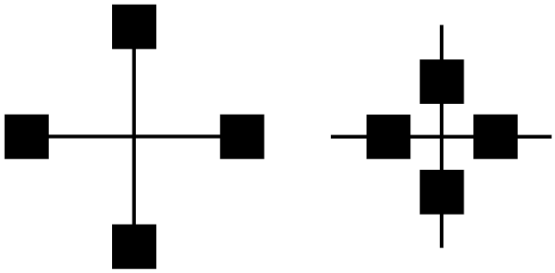
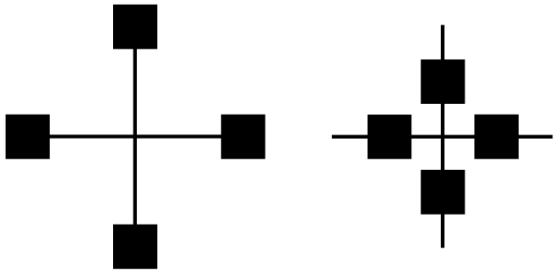


Suppose that the weights are moved a factor of 2 ***closer*** to the central axis. The ***angular acceleration*** will:

1) get a factor of 16 times larger.
2) get a factor of 8 times larger.
3) get a factor of 4 times larger.
4) get a factor of 2 times larger.
5) stay the same.
6) get a factor of 2 times smaller.
7) get a factor of 4 times smaller.
8) get a factor of 8 times smaller.
9) get a factor of 16 times smaller.



Suppose that the weights are moved a factor of 2 ***closer*** to the central axis. The ***time*** to travel the same distance will:

1) get a factor of 16 times larger.
2) get a factor of 8 times larger.
3) get a factor of 4 times larger.
4) get a factor of 2 times larger.
5) stay the same.
6) get a factor of 2 times smaller.
7) get a factor of 4 times smaller.
8) get a factor of 8 times smaller.
9) get a factor of 16 times smaller.

Consider a wheel rolling without slipping on a horizontal surface with friction. Which of the following is true?

1) The wheel will gradually slow down due to the effect of friction between the wheel and the surface.
2) Without friction, the wheel will eventually stop rotating.
3) The force of friction acting on the wheel is zero.
4) Friction exerts no torque on the wheel because the contact point between the wheel and surface isn't moving.
5) Two of the above are true.
6) Three of the above are true.
7) All of (1) – (4) are true.
8) None of the above.

Consider a wheel rolling without slipping down a slanted surface with friction. Which of the following is true?

1) The linear acceleration of the wheel along the incline can be calculated from the component of gravity in that direction.
2) The linear acceleration of the wheel along the incline can be calculated from the component of gravity in that direction minus the effect of friction, but you need to consider rotation to find the friction.
3) The linear acceleration of the wheel along the incline can be calculated from the component of gravity in that direction minus the effect of friction, but you need the normal force to find friction. You don't need to consider rotation at all.
4) None of the above are true.