

1. What is the equilibrant force for 53 newtons, W ; 28 newtons, S ; 12 newtons, N ; 24 newtons, E?

2. Two dogs pull on a toy. One pulls with a force of 11 N, the other with a force of 15 N.
 - a. In what relative directions can they act to give the toy the largest possible acceleration?

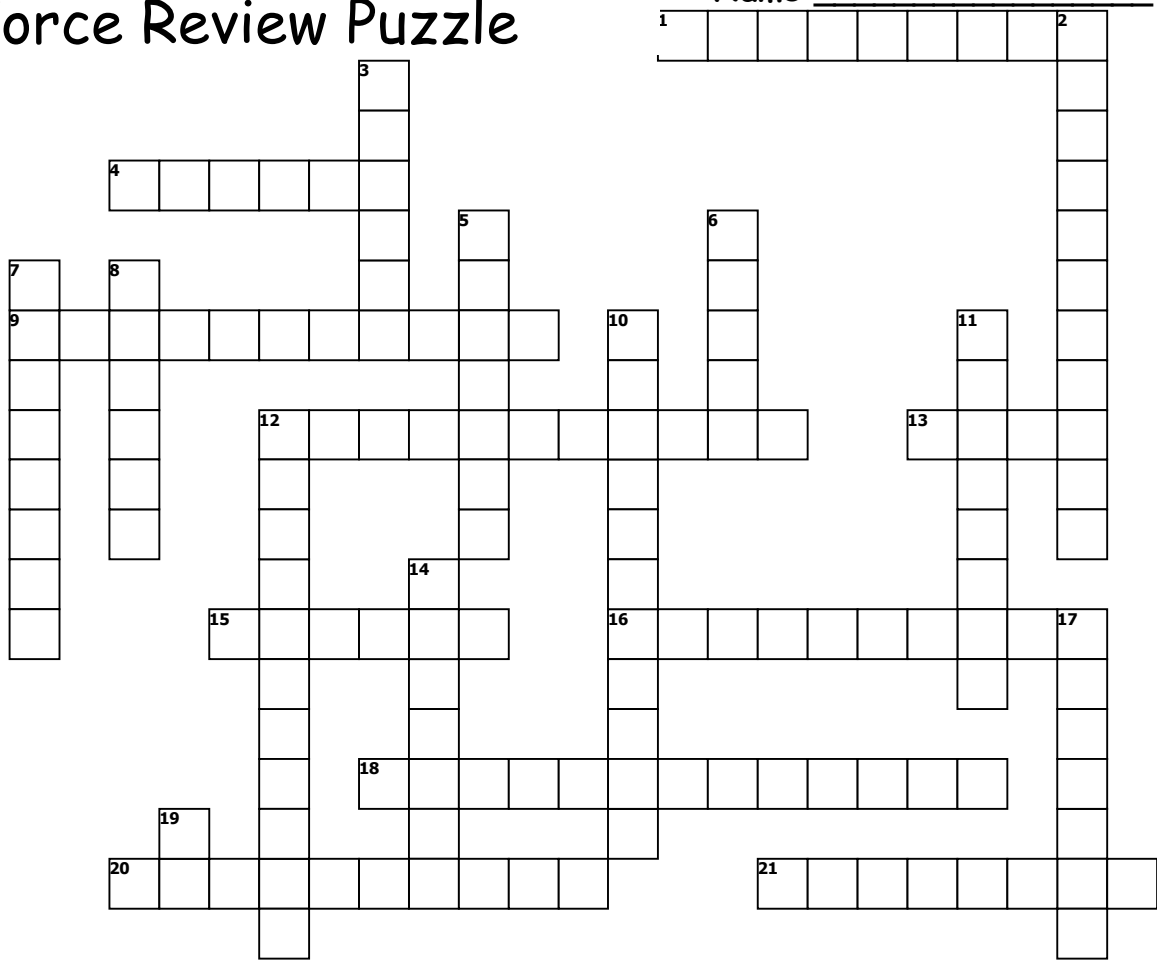
 - b. In what relative directions can they act to give the toy the smallest possible acceleration?

 - c. Can they ever result in zero acceleration?

3. Weight lifting has become very popular in the last few years. When lifting a barbell, which grip will exert less force on the lifter's arms, one where the hands are close together in the middle of the bar, or one where the hands are close to the weights? Explain.

Force Review Puzzle

Name _____



ACROSS

- 1** represented by a length of a force vector
- 4** discovered that gravity is a universal force
- 9** a state in which the net force on an object equals zero
- 12** any force toward center of a circle
- 13** Friction does not depend on _____ of contact.
- 15** force exerted on object perpendicular to surface

- 16** forces acting on same point at same time
- 18** As theta increases, the _____ component of weight decreases.
- 20** finding components of a force
- 21** force that opposes motion

DOWN

- 2** force required to put an object into a state of equilibrium

- 3** The point at which all the weight of an object seems to act is _____ of gravity.
- 5** Force of gravity is inversely proportional to distance _____.
- 6** symbol for angle
- 7** affects centripetal force more than any other factor
- 8** machine changing the direction of forces
- 10** _____ of friction is ratio of friction force to normal force

- 11** component of weight that pulls object down an inclined plane
- 12** finding resultant of concurrent forces
- 14** trig function used to find theta from components
- 17** transfers force through ropes, chains, *etc.*
- 19** Direction of equilibrant force for resultant force N of W is _____ of _____.