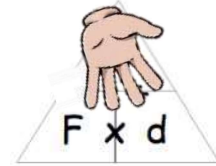
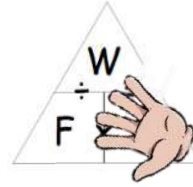
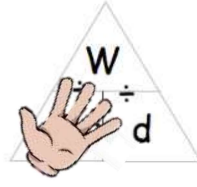
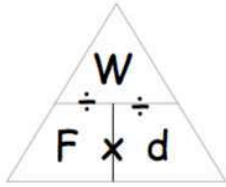


Work done calculations:

$$\text{Work done (J)} = \text{Force (N)} \times \text{Distance (m)}$$



Worked example: What is the work done if:

(a) Force = 3N, distance = 6m

STEP 1: Write the equation:

$$\text{Work done (J)} = \text{Force (N)} \times \text{Distance (m)}$$

STEP 2: Calculate:

$$= 3\text{N} \times 6\text{m}$$

$$\text{Work done (J)} = 18\text{J}$$

(b) Force = 20N, distance = 5m

STEP 1: Write the equation:

$$\text{Work done (J)} = \text{Force (N)} \times \text{Distance (m)}$$

STEP 2: Calculate:

$$= 20\text{N} \times 5\text{m}$$

$$\text{Work done (J)} = 100\text{J}$$

1. What is the work done if:

(a) Force = 10N, distance = 10m

STEP 1: Write the equation:

$$\text{Work done (J)} = \text{Force (N)} \times \text{Distance (m)}$$

STEP 2: Calculate:

$$= \boxed{} \times \boxed{}$$

$$\text{Work done (J)} = \boxed{}$$

(b) Force = 50N, distance = 5m

STEP 1: Write the equation:

$$\text{Work done (J)} = \text{Force (N)} \times \text{Distance (m)}$$

STEP 2: Calculate:

$$= \boxed{} \times \boxed{}$$

$$\text{Work done (J)} = \boxed{}$$

(c) Force = 750N, distance = 46m

STEP 1: Write the equation:

$$\text{Work done (J)} = \text{Force (N)} \times \text{Distance (m)}$$

STEP 2: Calculate:

$$= \boxed{} \times \boxed{}$$

$$\text{Work done (J)} = \boxed{}$$

(d) Force = 267N, distance = 49m

STEP 1: Write the equation:

$$\text{Work done (J)} = \text{Force (N)} \times \text{Distance (m)}$$

STEP 2: Calculate:

$$= \boxed{} \times \boxed{}$$

$$\text{Work done (J)} = \boxed{}$$

2. What is the force if:

(a) Work done = 1000J, distance = 2m

STEP 1: Write the equation:

$$\boxed{} = \boxed{} \div \boxed{}$$

STEP 2: Calculate:

$$= \boxed{} \div \boxed{}$$

$$\text{Force (N)} = \boxed{}$$

(b) Work done = 70J, distance = 5m

STEP 1: Write the equation:

$$\boxed{} = \boxed{} \div \boxed{}$$

STEP 2: Calculate:

$$= \boxed{} \div \boxed{}$$

$$\text{Force (N)} = \boxed{}$$

(c) Work done = 3600J, distance = 40m

STEP 1: Write the equation:

$$\boxed{} = \boxed{} \div \boxed{}$$

STEP 2: Calculate:

$$= \boxed{} \div \boxed{}$$

$$\text{Force (N)} = \boxed{}$$

(d) Work done = 4539J, distance = 51m

STEP 1: Write the equation:

$$\boxed{} = \boxed{} \div \boxed{}$$

STEP 2: Calculate:

$$= \boxed{} \div \boxed{}$$

$$\text{Force (N)} = \boxed{}$$

3. What is the distance if:

(a) Force = 100N, Work done = 2300J

STEP 1: Write the equation:

$$\text{Work done (J)} = \text{Force (N)} \times \text{Distance (m)}$$

STEP 2: Calculate:

$$2300 = 100 \times \text{Distance (m)}$$

$$\text{Distance (m)} = \frac{2300}{100}$$

(c) Force = 10N, Work done = 5800J

STEP 1: Write the equation:

$$\text{Work done (J)} = \text{Force (N)} \times \text{Distance (m)}$$

STEP 2: Calculate:

$$5800 = 10 \times \text{Distance (m)}$$

$$\text{Distance (m)} = \frac{5800}{10}$$

(b) Force = 20N, Work done = 4680J

STEP 1: Write the equation:

$$\text{Work done (J)} = \text{Force (N)} \times \text{Distance (m)}$$

STEP 2: Calculate:

$$4680 = 20 \times \text{Distance (m)}$$

$$\text{Distance (m)} = \frac{4680}{20}$$

(d) Force = 79N, Work done = 5056J

STEP 1: Write the equation:

$$\text{Work done (J)} = \text{Force (N)} \times \text{Distance (m)}$$

STEP 2: Calculate:

$$5056 = 79 \times \text{Distance (m)}$$

$$\text{Distance (m)} = \frac{5056}{79}$$

Stretch and challenge: Calculate:

Work done if:

(a) Force = 10N, distance = 10cm

STEP 1: Write the equation:

$$\text{Work done (J)} = \text{Force (N)} \times \text{Distance (m)}$$

STEP 2: Conversions:

$$10 \text{ cm to m} = \frac{10}{100} = 0.1 \text{ m}$$

STEP 2: Calculate:

$$\text{Work done (J)} = 10 \times 0.1$$

$$\text{Work done (J)} = 1$$

(a) Force = 25N, distance = 11mm

STEP 1: Write the equation:

$$\text{Work done (J)} = \text{Force (N)} \times \text{Distance (m)}$$

STEP 2: Conversions:

$$11 \text{ mm to m} = \frac{11}{1000} = 0.011 \text{ m}$$

STEP 2: Calculate:

$$\text{Work done (J)} = 25 \times 0.011$$

$$\text{Work done (J)} = 0.275$$

Force if:

(c) Work done = 10KJ, distance = 2m

STEP 1: Write the equation:

$$\text{Work done (J)} = \text{Force (N)} \times \text{Distance (m)}$$

STEP 2: Conversions:

$$10 \text{ KJ to J} = 10 \times 1000 = 10000 \text{ J}$$

STEP 2: Calculate:

$$10000 = \text{Force (N)} \times 2$$

$$\text{Force (N)} = \frac{10000}{2}$$

(d) Work done = 15KJ, distance = 36cm

STEP 1: Write the equation:

$$\text{Work done (J)} = \text{Force (N)} \times \text{Distance (m)}$$

STEP 2: Conversions:

$$15 \text{ KJ to J} = 15 \times 1000 = 15000 \text{ J}$$

$$36 \text{ cm to m} = \frac{36}{100} = 0.36 \text{ m}$$

STEP 2: Calculate:

$$15000 = \text{Force (N)} \times 0.36$$

$$\text{Force (N)} = \frac{15000}{0.36}$$

Distance if:

(e) Force = 100mN, Work = 23J

STEP 1: Write the equation:

$$\text{Work done (J)} = \text{Force (N)} \times \text{Distance (m)}$$

STEP 2: Conversions:

$$100 \text{ mN to N} = \frac{100}{1000} = 0.1 \text{ N}$$

STEP 2: Calculate:

$$23 = 0.1 \times \text{Distance (m)}$$

$$\text{Distance (m)} = \frac{23}{0.1}$$

(f) Force = 23N, Work = 23KJ

STEP 1: Write the equation:

$$\text{Work done (J)} = \text{Force (N)} \times \text{Distance (m)}$$

STEP 2: Conversions:

$$23 \text{ KJ to J} = 23 \times 1000 = 23000 \text{ J}$$

STEP 2: Calculate:

$$23000 = 23 \times \text{Distance (m)}$$

$$\text{Distance (m)} = \frac{23000}{23}$$

HINT: Remember the units, do any of these units need converting?