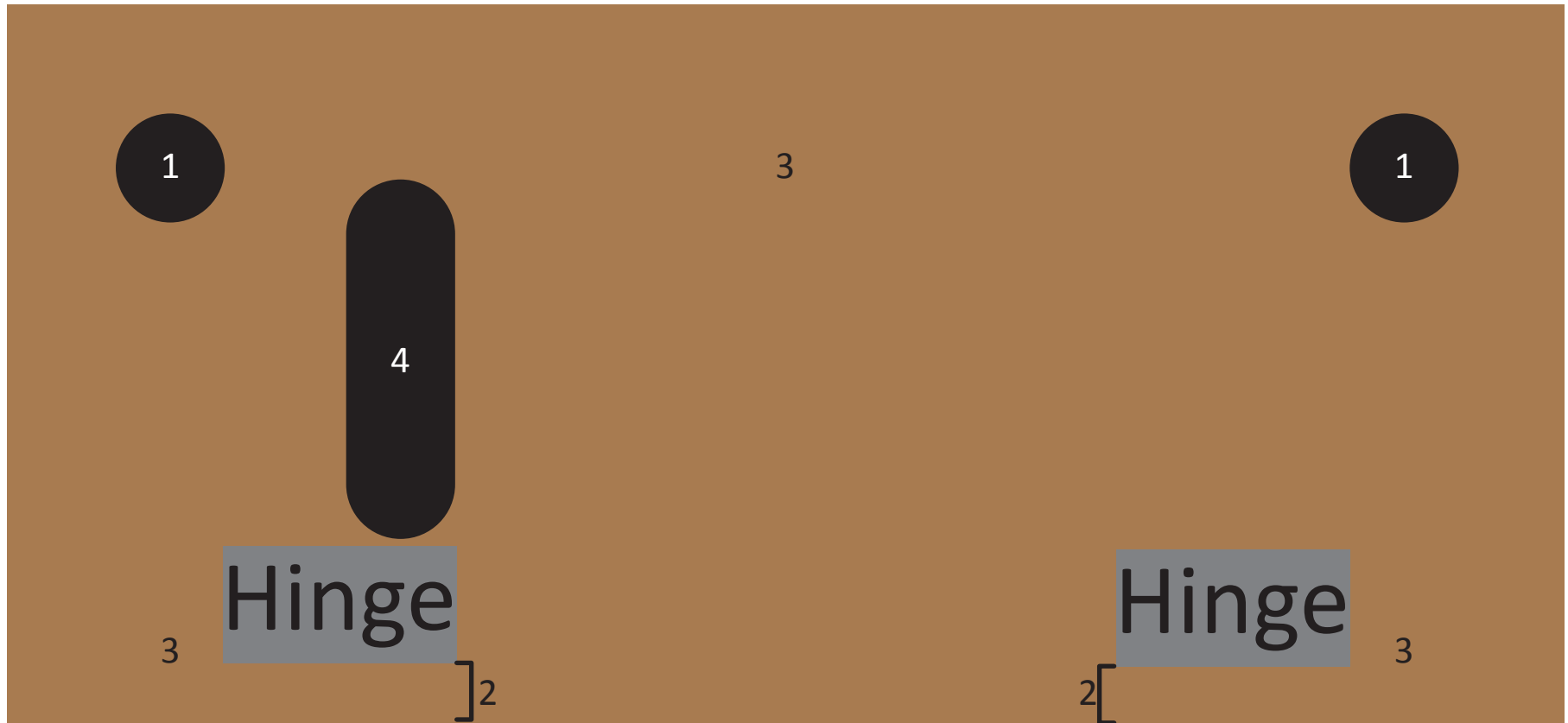


Stationary Base Board



Notes:

Board size as-designed: 20"X9.25"X0.75" (50cmX23.5CMX20mm)

1- Exact placement not critical. Place such that adgle adjustment rods do not interfere with moving components. Hole size should be 1 3/8 inches (35mm) for 0.5-inch (13mm) drive rod supports and 1.5-inch (43mm) washers.

2- 0.75 inches (or articulating board width)

3- Place two 1/4-20 to 3/8-16 adapters in the underside. These will serve as tripod mounts. Place on each side of the board. Tap holes will be 5/16

4- Placement and size approximate. Hole needed to allow motor to move after it's mounted on the articulating board.

Articulating Base Board



Notes:

Board size is 20"X7.25"X0.75" (50cmX18.5cmX20mm)

- 1- Exact placement not critical. Place such that adgle adjustment rods do not interfere with moving components. Do not alight directly with stationary board holes. Instead, place about 0.5 inches (13mm) closer to the hinges.
- 2- Affix hinges to the board's underside.
- 3- Place hinge rotational centers 1.91" (distance is different for metric calculations) from each other and parallel.
- 4- Approximate motor mount location. Alternately, a hole for manual drive arm. Final placement determined after placing motor drive rod connection in drive arm.

Drive Arm



Notes:

Board size is 17"X2.5"X0.75" (43cmX6.5cmX20mm)

1- Exact placement is critical to motor alignment.

Place this hole and affix drive rod receipt nut prior to finalizing motor placement

Camera Arm (Basic)



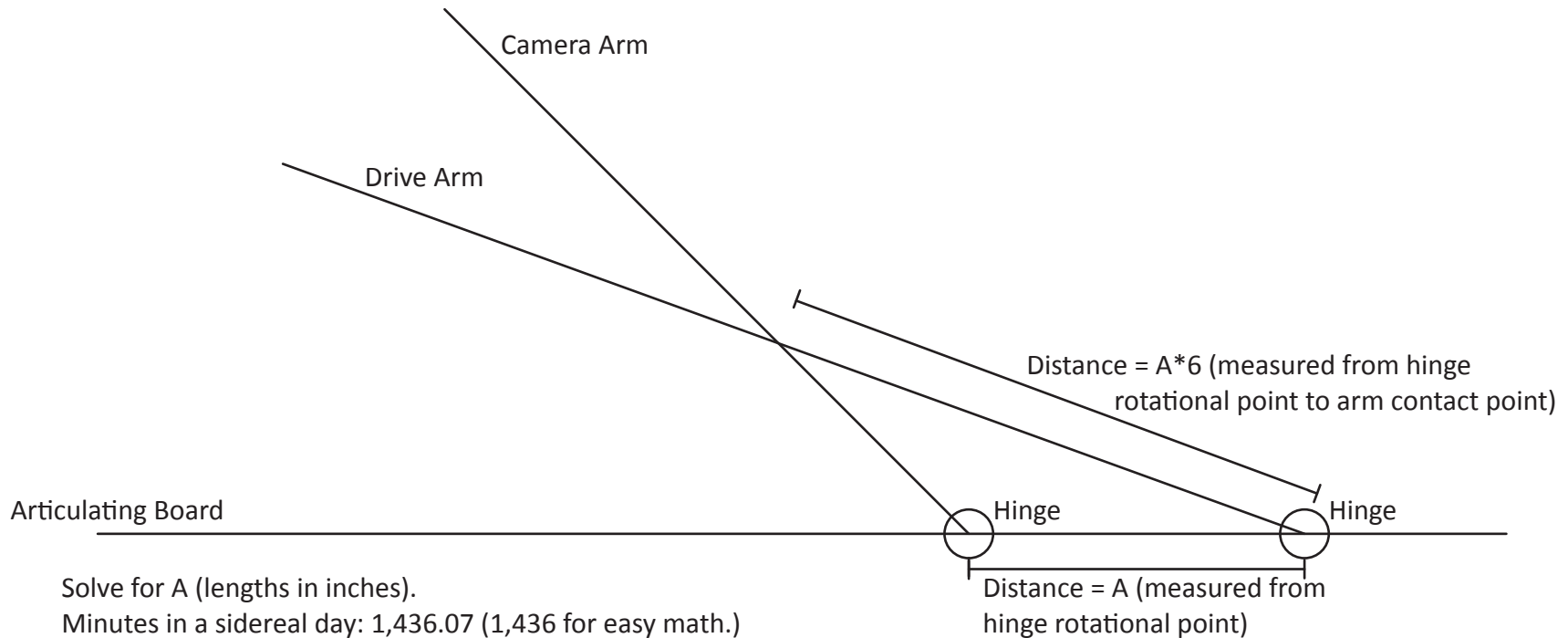
Notes:

Board size is 14"X2.5"X0.75" (35.5cmX6.5cmX20mm)

1- 3/8-inch inner diameter hole. Exact placement is critical. Hole center must be 11.46 inches (distance is different for metric calculations) from hinge rotational axis.

2 Install a small "L" bracket with a ball-bearing wheel (typical screen door wheel). Ideally, place the wheel's rotational axis in the center of the board and also align it at 11.46 inches from the hinge's rotational axis. Ideally, use a wheel with the same diameter as the board's thickness.

Algebra



Solve for A (lengths in inches).

Minutes in a sidereal day: 1,436.07 (1,436 for easy math.)

Degrees in a full circle: 360-degrees

Movement of stars in the sky = $360/1,436=0.25$ degrees/minute

Drive rod speed (assumed) 1 RPM

Time for 1 degree = 4 minutes

Calculate the degrees covered in one inch: threads per inch (tpi)/4 (rotations per degree)

$20\text{tpi} = 5$ degrees per inch, $16\text{tpi} = 4$ degrees per inch

Calculate drive circumference: $360/\text{degrees per inch}$

$20\text{tpi} = 360/5 = 72$, $16\text{tpi} = 360/4 = 90$

Calculate radius from circumference:

$72 = 11.46$, $90 = 14.32$

Calculate arm lengths and hinge relationships:

$A * 6 = 11.46$ (20tpi), $A * 6 = 14.32$ (16tpi)

$A = 1.91$ (20tpi), $A = 2.39$ (16tpi)

Motor and Drive Rod Connection

