

DEPARTMENT OF COMMERCE
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METRIC AND ENGLISH DISTANCE EQUIVALENTS FOR ATHLETIC
EVENTS (TRACK AND FIELD)

On November 22, 1932, the Amateur Athletic Union took official action adopting metric distances for track events to be run in athletic meets held under the jurisdiction of that body.

It may be assumed that other athletic bodies will follow the lead of the A.A.U. in adopting metric distances for track events, and also that the use of metric units may be extended to include field events.

With this thought in mind the following tables of equivalents have been prepared to aid in conversions between the two systems of units, and to assist those not entirely familiar with the metric system to gain a mental picture of the various distances expressed in meters.

Explanation: In Table 1 are given the equivalent metric and English distances for the principal track events of both indoor and outdoor meets.

In Table 2 are given the metric equivalents, expressed in meters, for all distances expressed in feet, inches, and binary fractions of an inch, up to 1,000 feet. This table may be conveniently used to find the metric equivalent of any distance, given to the nearest 1/8 inch, over a range sufficiently wide to include all field events by the simple process of breaking the distance down into convenient parts, finding the equivalent of each part, and adding them together to obtain the total equivalent.

Example: Find the metric equivalent of 242 feet, 10 1/8 inches.

| | | |
|-----------------------|---|-------------------|
| 200 feet | = | 60.960 meters |
| 40 feet | = | 12.192 meters |
| 2 feet | = | .610 meter |
| 10 inches | = | .254 meter |
| <u>1/8 inch</u> | = | <u>.003 meter</u> |
| 242 ft. 10 1/8 inches | = | 74.019 meters |

Note: In order to avoid confusion and possible error, it is recommended that all metric distances in track and field events be expressed in meters and decimal fractions of the meter.

METRIC AND ENGLISH DISTANCE EQUIVALENTS

FOR

ATHLETIC EVENTS (TRACK AND FIELD)

(Basis: 1 meter = 39.37 inches = 3.2808 feet = 1.0936 yard)
 1 kilometer = 1,000 meters = 0.621370 mile.

Table 1. - Track Events

| Yards to meters | | Meters to yards | | | |
|-----------------|------------------|-----------------|----------|--|--|
| Yards | Meters | Meters | Yards | | |
| 40 = | 36.58 | 50 = | 54.68 | | |
| 50 = | 45.72 | 60 = | 65.62 | | |
| 60 = | 54.86 | 65 = | 71.08 | | |
| 70 = | 64.01 | 80 = | 87.49 | | |
| 75 = | 68.58 | 100 = | 109.36 | | |
| 100 = | 91.44 | 110 = | 120.30 | | |
| 110 = | 100.58 | 200 = | 218.72 | | |
| 120 = | 109.73 | 300 = | 328.08 | | |
| 220 = | 201.17 | 400 = | 437.44 | | |
| 300 = | 274.32 | 500 = | 546.81 | | |
| (1/4 mi.) | 440 = 402.34 | 600 = | 656.16 | | |
| | 600 = 548.64 | 800 = | 874.89 | | |
| (1/2 mi.) | 880 = 804.67 | 1,000 = | 1,093.61 | | |
| | 1,000 = 914.40 | 1,500 = | 1,640.42 | | |
| (3/4 mi.) | 1,320 = 1,207.01 | 1,600 = | 1,749.78 | | |

| Miles | Meters | Meters | Miles | Yards | Inches | Miles (approx.) |
|-------|----------|----------|-------|-------|--------|-----------------|
| 1 = | 1,609.3 | 2,000 = | 1 | 427 | 8 | 1.24 |
| 2 = | 3,218.7 | 2,400 = | 1 | 864 | 24 | 1.49 |
| 3 = | 4,828.0 | 3,000 = | 1 | 1,520 | 30 | 1.86 |
| 4 = | 6,437.4 | 3,200 = | 1 | 1,739 | 20 | 1.99 |
| 5 = | 8,046.7 | 5,000 = | 3 | 188 | 2 | 3.11 |
| 6 = | 9,656.1 | 6,000 = | 3 | 1,281 | 24 | 3.73 |
| 7 = | 11,265.4 | 10,000 = | 6 | 376 | 4 | 6.21 |
| 8 = | 12,874.8 | 15,000 = | 9 | 564 | 6 | 9.32 |
| 9 = | 14,484.1 | 20,000 = | 12 | 752 | 8 | 12.43 |
| 10 = | 16,093.5 | 25,000 = | 15 | 940 | 10 | 15.53 |
| 15 = | 24,140.2 | 30,000 = | 18 | 1,128 | 12 | 18.64 |
| 20 = | 32,186.9 | 50,000 = | 31 | 120 | 20 | 31.07 |
| 25 = | 40,233.7 | | | | | |

26 mi. and 385 yds. = 42,195.1

Table 2. - Field events

| Feet | Meters | Feet | Meters | Feet | Meters |
|------|---------|------|----------|------|-----------|
| 1 | = 0.305 | 10 | = 3.048 | 100 | = 30.480 |
| 2 | = .610 | 20 | = 6.096 | 200 | = 60.960 |
| 3 | = .914 | 30 | = 9.144 | 300 | = 91.440 |
| 4 | = 1.219 | 40 | = 12.192 | 400 | = 121.920 |
| 5 | = 1.524 | 50 | = 15.240 | 500 | = 152.400 |
| 6 | = 1.829 | 60 | = 18.288 | 600 | = 182.880 |
| 7 | = 2.134 | 70 | = 21.336 | 700 | = 213.360 |
| 8 | = 2.438 | 80 | = 24.384 | 800 | = 243.840 |
| 9 | = 2.743 | 90 | = 27.432 | 900 | = 274.321 |

| Inches | Meter | Inches | Meter | Inches | Meter |
|--------|---------|--------|---------|--------|---------|
| 1 | = 0.025 | 5 | = 0.127 | 9 | = 0.229 |
| 2 | = .051 | 6 | = .152 | 10 | = .254 |
| 3 | = .076 | 7 | = .178 | 11 | = .279 |
| 4 | = .102 | 8 | = .203 | 12 | = .305 |

| Fractions of an Inch | Meter | Fractions of an Inch | Meter |
|----------------------------|---------|----------------------------|---------|
| 1/8 | = 0.003 | 5/8 | = 0.016 |
| 1/4 | = .006 | 3/4 | = .019 |
| 3/8 | = .010 | 7/8 | = .022 |
| 1/2 | = .013 | 1 | = .025 |

In deciding upon the number of decimal places to be retained in the accompanying tables consideration has been given to the precision of measurement of distance and of time as ordinarily carried out in connection with track and field events.

In field events it is customary to measure distances in feet and inches to the nearest 1/8 inch. This corresponds to about 3 millimeters or 0.003 meter. In order not to sacrifice accuracy in converting these measured distances to meters the metric equivalents are given to the nearest 0.001 meter. This precision is ample since the equivalents are more precise than the measurements themselves.

In the case of track events consideration has been given to the precision of measurement of both distance and time as ordinarily carried out in connection with these events. The time measurements are, in general, much the less precise of the two.

Time, when taken with stop watches, is ordinarily given to $1/5$ second or to $1/10$ second. When taken with electrical timing devices it may be given to $1/100$ second.

In the dashes, where 1 second represents a distance of approximately 10 yards or 10 meters, $1/10$ second represents roughly 1 yard or 1 meter, and $1/100$ second a distance of $1/10$ yard or $1/10$ meter. Obviously, then, there is no need at present to give metric equivalents of distances more precisely than to the nearest $1/10$ meter even when the most precise timing methods are used. For distances less than 1 mile they have, however, been given to the nearest $1/100$ meter in order to allow for possible future improvement in timing equipment.

Bureau of Standards Circular No. 47, "Units of Weight and Measure (Definitions and Tables of Equivalents)", gives a complete list of metric and English equivalents (from 1 to 1,000). It will be found useful in converting weights from pounds to kilograms and body dimensions from feet and inches to centimeters. Circular No. 47 can be purchased from the Superintendent of Documents, Government Printing Office, Washington, D. C., at 15 cents per copy.

