Solution:

As you know, the Earth has 24 time zones, which correspond to 360 degrees of longitude.

Therefore $360^o \leftrightarrow$ 24 hour ➔ 1 hour = 15^o

The difference in longitude between cities is 45^o-15^o=30^o

Both are located west of Greenwich, respectively, time in a city with a longitude of 45 W is less than in a city with a longitude of 15 W. The difference of 30 degrees corresponds to a difference of 2 hours(Δ T):

$$\frac{24\ h}{360^o} = \frac{\Delta T}{30^o}$$

$$\Delta T = \frac{24h \cdot 30^o}{360^o} = \frac{24h}{12} = 2\ h$$

Accordingly, the local time in the city with a longitude of 45 W is 2 am-2 = 0 am ➔ 12:00 (midnight)

Answer: 12:00 *(midnight)*