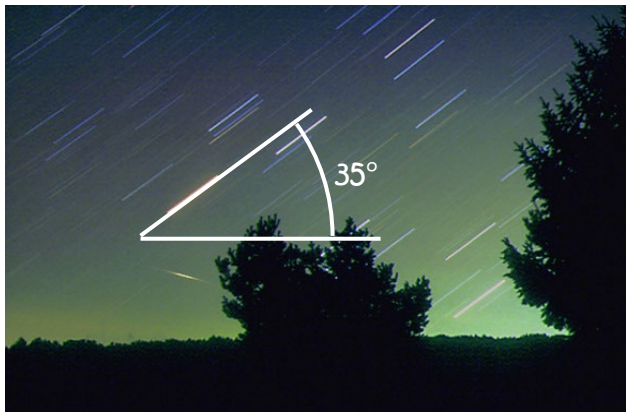
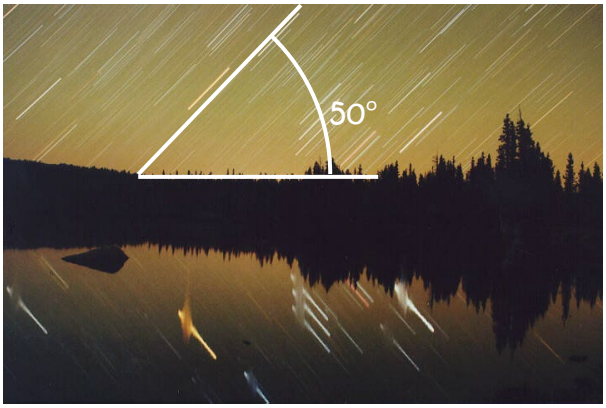
Name Solution

Star Trails

Unless you are at the equator or one of the poles, the stars rise from (and set towards) the horizon along paths parallel to the celestial equator. For the following images, use a protractor to determine the latitude of the photograph (measure the straightest star trail on the photo.).[12]

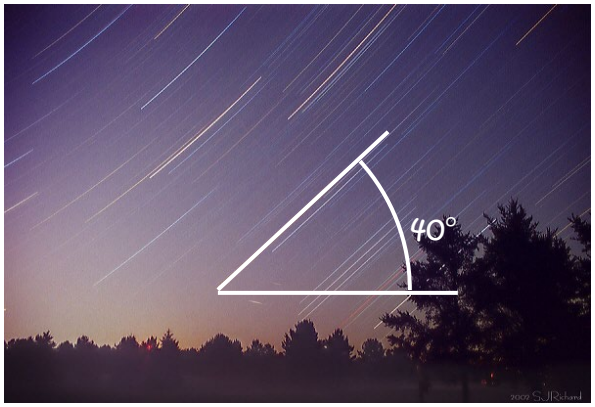


Latitude: 90 – 35 = 55° N *Don't neglect the hemisphere!*



Latitude: 90 – 50 = 40° N

Latitude: 90 – 60 = 30° N



Latitude: 90 – 40 = 50° N

Latitude: 90 – 60 = 30° N

Latitude: 90 – 30 = 60° N

Star Transit Times

Figure 1-3 in the Field Guide is a Graphic Timetable of the heavens giving the transit times of the bright stars. Use it to find the following[10]

Date	Star	Transit Time
September 1	Deneb	11 pm EDT
April 1	Vega	7 am EDT
May 1	Vega	5 am EDT
June 1	Vega	3 am EDT
July 1	Vega	1 am EDT
August 1	Vega	11 pm EDT
September 1	Vega	9 pm EDT
May 15	Altair	5 am EDT
September 15	Betelgeuse	7 am EDT
February 1	Aldebaran	8 pm EST
March 1	Aldebaran	6 pm EST

What pattern do you see in the transit times of Vega through the spring and summer?[3]

It transits 2 hours earlier at the beginning of each month.

Assuming a month is 30 days, how many minutes earlier does Vega transit each day?[3]

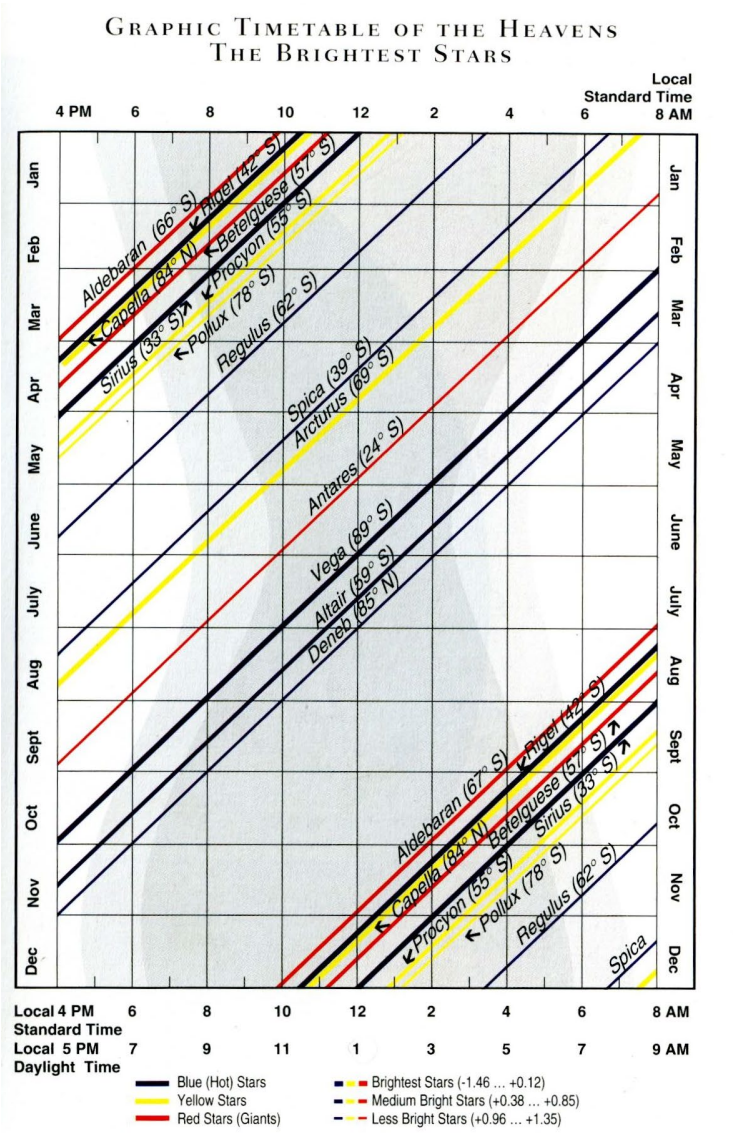


Fig. 1-3 Graphic Timetable of the Brightest Stars, showing when they transit. (© 2000 Scientia, Inc.)

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2 hours earlier each month $\Rightarrow$ 2 hours earlier each 30 days
$\Rightarrow$ 1 hour earlier each 15 days $\Rightarrow$ 60 minutes earlier each 15 days
$\Rightarrow$ 4 minutes earlier each 1 days

$$\frac{60 \text{ minutes earlier}}{15 \text{ days}} = \frac{60}{15}\frac{\text{minutes earlier}}{\text{day}} = 4\frac{\text{minutes earlier}}{\text{day}}$$