

Time 1 (Intermediate UKMT)

These questions must be attempted ***without a calculator***

Topics covered in the questions below may not necessarily be from the topic of the title.

1. At midnight on 15 December 2005, the moon reached its highest point in the sky, an event which occurs every 18.6 years.

In which year will it next occur?

A 2007 B 2008 C 2023 D 2024 E 2191

2. How many hours are there in this week (in February 2008)?

A 24 B 70 C 84 D 148 E 168

3. Harriet Hare and Turbo Tortoise want to cross the finish line together on their 12 mile woodland race. Turbo sets off at 8:15 am and trots at a constant speed of 4 mph.

Given that Harriet runs at a constant speed of 8 mph, at what time should she set off?

A 9:45 am B 10:15 am C 10:45 am D 11:15 am E 11:45 pm

4. Thirty years ago Mike McNamara cycled 445.0 km in 12 hours – a new British men's record at that time. In the same time trial Beryl Burton (who died last year) completed 446.2 km.

How much faster was Beryl Burton's average speed than Mike McNamara's (in metres per hour)?

A 1.2 B 10 C 11 D 100 E 1200

5. In a sponsored "Animal Streak" the cheetah ran at 90km/hr while the snail slimed along at 20 hr/km. The cheetah kept going for 18 seconds.

Roughly how long would the snail take to cover the same distance?

A 9 months B 9 weeks C 9 days D 9 hours E 9 minutes

6. Timmy, Tammy and Tommy all have tummy ache! They all set off separately to visit their doctor, leaving their homes at exactly the same time. Timmy cycles the 8 km to the surgery at an average speed of 20 km/hr; Tammy walks the 1.2 km to the surgery at an average speed of 4 km/hr and Tommy drives the 16.5 km to the surgery at an average speed of 45 km/hr.

In what order do they arrive at the surgery?

- A Tommy, Timmy, Tammy B Timmy, Tommy, Tammy C Timmy, Tammy, Tommy
 D Tammy, Timmy, Tommy E Tammy, Tommy, Timmy

7. The coach of the Irish hockey team has a maximum speed of 60 miles per hour. If it travels at this speed for two hours, roughly how many kilometres does it travel?

- A 120 B 160 C 200 D 240 E 280

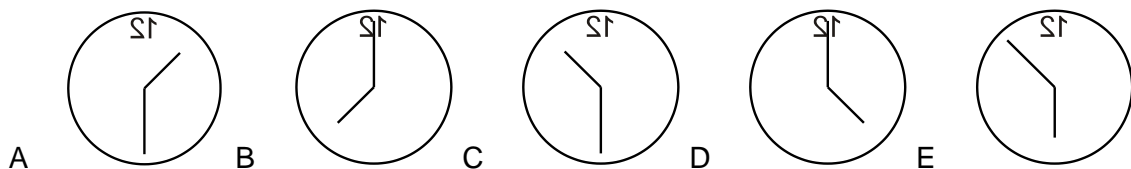
8. The time shown on a digital clock is 5:55.

How many minutes will pass before the clock next shows a time for which all the digits are the same?

- A 71 B 255 C 316 D 377 E 436

9. Professor Rosseforp has an unusual clock. The clock shows the correct time at noon, but the hands move anti-clockwise rather than clockwise. The clock is very accurate, however, so the hands move at the correct speeds.

If you looked in a mirror at the Professor's clock at 1:30 pm, which of the following would you see?



10. I walk to the bike shop at 3 miles per hour and cycle back along the same route at 12 miles per hour.

What is my average speed, in miles per hour, for the time I am actually travelling on the route?

- A 3.75 B 4.8 C 6 D 8 E 9