1. Mathematical Reasoning

Today, Jack is twice as old as his sister, Jill. In 5 years' time, he will be 7 years older than his sister. How old are Jack and Jill now?

   a) Jack = 6, Jill = 3
   b) Jack = 12, Jill = 6
   c) Jack = 8, Jill = 4
   d) Jack = 14, Jill = 7
   e) Jack = 10, Jill = 5

2. Thinking Skills

At my school athletics carnival, six girls are keen to win the trophy given to the student who ranks highest overall in two events – 100m sprint and discus. This is determined by adding the two ranks for each competitor. Here are their results:

	Students			Discus (metres)			100 m (seconds)			
	Julie			20.4			15.3			
	Chin Pin			15.8			14.6			
	Alesia			19.3			16.2			
	Shayana			11.4			14.5			
	Christi			21.3			16.4			
	Arya			18.6			15.2			

Which student will win the trophy?

   a) Shayana
   b) Christi
   c) Julie
   d) Alesia

3. Reading

Read the four extracts below. They provide information about Artificial Intelligence often known as AI.

Extract A

Despite the disturbing uncertain futures presented to us in some movies and TV shows, AI is not going to take over the world. It won't do a better job of being 'human' than humans, any time soon. That's because human intelligence and artificial intelligence are different things. Humans can instinctively understand context and apply common sense to decisions. Humans can exercise judgement, feel empathy, and be creative. Humans can have a sense of the past, present and future, and the feelings attached to those times.

So far, AI is based on patterns within trained data. As a result it is significantly limited in what it can produce. Some researchers say referring to AI as 'intelligence' is misleading, because all it is really doing is pattern-matching. 'Intelligence', as we commonly understand it, is much more than this.

Extract B

Artificial intelligence, or "AI," is the ability for a computer to think and learn. With AI, computers can perform tasks that are typically done by people, including processing language, problem-solving, and learning.

AI is all around us, and whether or not you realize it, people use artificial intelligence every single day. Current common use includes Google Maps, Uber, Autocorrect, Siri and Alexa. Even though AI is used today, computer scientists predict artificial intelligence will be even more prominent in the future. Because of this, many jobs will also need us to understand how AI works so we can solve big problems. This is already true of many professions today. Doctors use AI to diagnose patients based on medical scans, like X-rays. Astronauts can use AI models to detect exoplanets, or planets outside our Solar System.

Extract C

In the right hands, AI systems can be incredibly powerful tools. They can see patterns humans can't see and automate complex processes. The potential of AI to help us solve our nation's greatest challenges, like climate change and the energy transition, is enormous. But it's up to all of us to ensure AI is used for the right reasons and at the right time. By understanding the fundamentals of AI and how it works, you can make informed decisions about when to use it in your own life and help to educate others.

Extract D

As AI slowly affects many areas of our lives, children need to understand how it works and affects our choices, such as what we buy and how we choose to live. Other reasons to learn about AI include the fact that it's becoming increasingly important in all careers and education. It's currently used in many industries, from healthcare to transportation to manufacturing. This means learning about AI will help children prepare for future careers. What's more, by learning about AI now, children can give themselves a head start on developing the skills they need for future career success.

Which extract …

expresses ethical concerns?

indicates that AI is not a new phenomenon?

SOLUTIONS

1. Solution

First it should be noticed that each of the five options satisfy the condition that Jack is currently twice the age of Jill.

It would be possible to take each option and add 5 years to each age to determine when there is a 7-year age gap.

However, it should be appreciated that there will always be a 7-year gap between the siblings. Consequently, this gap will also be 7 years today. Hence you should subtract the ages in each option until you find one which gives and answer of 7.

This is option d)

2. Solution

It is important to recognise that the best discus thrower is the one who throws the furthest but the best sprinter is the one whose time is fastest. Here are the ranks:

	Students			Discus (metres)	rank		100 m (seconds)	rank		TOTAL RANKS
	Julie			20.4	2		15.3	4		6
	Chin Pin			15.8	5		14.6	2		7
	Alesia			19.3	3		16.2	5		8
	Shayana			11.4	6		14.5	1		7
	Christi			21.3	1		16.4	6		7
	Arya			18.6	4		15.2	3		7

So the answer is c) Julie

3. Solution

Which extract …

expresses ethical concerns? *Extract C*

(But it's up to all of us to ensure AI is used for the right reasons and at the right time.)

indicates that AI is not a new phenomenon? *Extract B*

(..people use artificial intelligence every single day. Current common use includes Google Maps, Uber, Autocorrect, Siri and Alexa.)