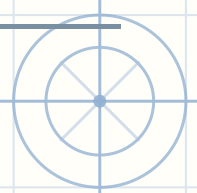


Arithmetic — Who is lying

Name: _____

Date: _____



Work out how many of the islanders are liars, from what each of them says.

- 1 On an island, every person is either a truth-teller, who only says true things, or a liar, who only says false things. Maya says, "Leo and I are of different kinds." Leo says, "Nell is a liar." Nell says, "Maya always tells the truth."

How many of the three are liars?

Why Start with Maya's statement, because a "same kind / different kind" claim gives the OTHER person away whoever makes it. If Maya tells the truth, then Maya and Leo really are of different kinds, so Leo is a liar. If Maya is lying, they are really the same kind, and since Maya would be a liar, Leo is a liar too. Either way, Leo is a liar. Now Leo says "Nell is a liar". We know Leo is a liar, so that is a lie — which makes Nell a truth-teller. Then Nell says "Maya always tells the truth". As a truth-teller, that is true, so Maya is a truth-teller. So Leo is a liar, Maya is a truth-teller and Nell is a truth-teller — 1 of them is a liar.

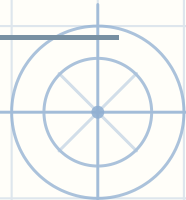
1



Arithmetic — Who is lying

Name: _____

Date: _____



Work out how many of the islanders are liars, from what each of them says.

- 2 On an island, every person is either a truth-teller, who only says true things, or a liar, who only says false things. Elsa says, "Dev and I are of different kinds." Dev says, "Faye always tells the truth." Faye says, "Elsa always tells the truth."

How many of the three are liars?

Why

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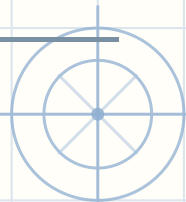
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Arithmetic — Who is lying

Name: _____

Date: _____



Work out how many of the islanders are liars, from what each of them says.

- 3 On an island, every person is either a truth-teller, who only says true things, or a liar, who only says false things. Hana says, "Gus and I are the same kind." Gus says, "Iris always tells the truth." Iris says, "Hana is a liar."

How many of the three are liars?

Why

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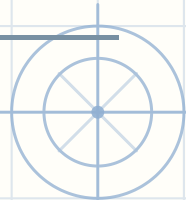
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Arithmetic — Who is lying

Name: _____

Date: _____



Work out how many of the islanders are liars, from what each of them says.

- 4 On an island, every person is either a truth-teller, who only says true things, or a liar, who only says false things. Hana says, "Gus and I are of different kinds." Gus says, "Iris is a liar." Iris says, "Hana is a liar."

How many of the three are liars?

Why

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Who is lying — Answer key

If they are stuck

- A 'same kind' or 'different kind' claim gives the OTHER person away whoever says it. Start there.

1. Start with Maya's statement, because a "same kind / different kind" claim gives the OTHER person away whoever makes it. If Maya tells the truth, then Maya and Leo really are of different kinds, so Leo is a liar. If Maya is lying, they are really the same kind, and since Maya would be a liar, Leo is a liar too. Either way, Leo is a liar. Now Leo says "Nell is a liar". We know Leo is a liar, so that is a lie — which makes Nell a truth-teller. Then Nell says "Maya always tells the truth". As a truth-teller, that is true, so Maya is a truth-teller. So Leo is a liar, Maya is a truth-teller and Nell is a truth-teller — 1 of them is a liar.

3. Start with Hana's statement, because a "same kind / different kind" claim gives the OTHER person away whoever makes it. If Hana tells the truth, then Hana and Gus really are the same kind, so Gus is a truth-teller. If Hana is lying, then they are really of different kinds, and since Hana would be a liar, Gus is a truth-teller once more. Either way, Gus is a truth-teller. Now Gus says "Iris always tells the truth". We know Gus is a truth-teller, so that is true — which makes Iris a truth-teller. Then Iris says "Hana is a liar". As a truth-teller, that is true, so Hana is a liar. So Gus is a truth-teller, Hana is a liar and Iris is a truth-teller — 1 of them is a liar.

2. Start with Elsa's statement, because a "same kind / different kind" claim gives the OTHER person away whoever makes it. If Elsa tells the truth, then Elsa and Dev really are of different kinds, so Dev is a liar. If Elsa is lying, they are really the same kind, and since Elsa would be a liar, Dev is a liar too. Either way, Dev is a liar. Now Dev says "Faye always tells the truth". We know Dev is a liar, so that is a lie — which makes Faye a liar. Then Faye says "Elsa always tells the truth". As a liar, that is false, so Elsa is a liar. So Dev is a liar, Elsa is a liar and Faye is a liar — 3 of them are liars.

4. Start with Hana's statement, because a "same kind / different kind" claim gives the OTHER person away whoever makes it. If Hana tells the truth, then Hana and Gus really are of different kinds, so Gus is a liar. If Hana is lying, they are really the same kind, and since Hana would be a liar, Gus is a liar too. Either way, Gus is a liar. Now Gus says "Iris is a liar". We know Gus is a liar, so that is a lie — which makes Iris a truth-teller. Then Iris says "Hana is a liar". As a truth-teller, that is true, so Hana is a liar. So Gus is a liar, Hana is a liar and Iris is a truth-teller — 2 of them are liars.