→ Testing Sibling

→ Assignment forward backwards (correct)
→ Asking (using are _ and _ siblings?) forward backwards (correct)

```
> s and b are siblings.
OK! I learned something.
> are s and b siblings?
Yes!
> are b and s siblings?
Yes!
> b2 and s2 are siblings.
OK! I learned something.
> are s2 and b2 siblings?
Yes!
> are b2 and s2 siblings?
Yes!
```

→ Assignment of Siblings on-to different siblings (correct)
→ Asking (using who are the siblings of _?) Siblings for each sibling (correct)

```
> a and b are siblings.
OK! I learned something.
> b and c are siblings.
OK! I learned something.
> c and d are siblings.
OK! I learned something.
> who are the siblings of a?
The sibling/s of a is/are b, c, d
> who are the siblings of b?
The sibling/s of b is/are a, c, d
> who are the siblings of c?
The sibling/s of c is/are b, a, d
> who are the siblings of d?
The sibling/s of d is/are c, b, a
```

→ Assignment of Sister on-to different siblings (correct)
→ Asking (using who are the siblings of _?) Siblings for each sibling (correct)
→ Assignment of Brother on-to different siblings (correct)
→ Asking (using who are the siblings of _?) Siblings for each sibling (correct)

***** For the past 3 testcases output of who are the siblings of _?
***** Are in the same order for all of 3 of the testcases

```
> a is a sister of b.
OK! I learned something.
> b is a sister of c.
OK! I learned something.
> c is a sister of d.
OK! I learned something.
> who are the siblings of a?
The sibling/s of a is/are b, c, d
> who are the siblings of b?
The sibling/s of b is/are a, c, d
> who are the siblings of c?
The sibling/s of c is/are b, a, d
> who are the siblings of d?
The sibling/s of d is/are c, b, a
```

```
> a is a brother of b.
OK! I learned something.
> b is a brother of c.
OK! I learned something.
> c is a brother of d.
OK! I learned something.
> who are the siblings of a?
The sibling/s of a is/are b, c, d
> who are the siblings of b?
The sibling/s of b is/are a, c, d
> who are the siblings of c?
The sibling/s of c is/are b, a, d
> who are the siblings of d?
The sibling/s of d is/are c, b, a
```

→ Assignment of Mother on-to different siblings (correct)
→ Asking (using who are the siblings of _?) Siblings for each sibling (correct)
→ Assignment of Father on-to different siblings (correct)
→ Asking (using who are the siblings of _?) Siblings for each sibling (correct)

```
> m is the mother of a.
OK! I learned something.
> m is the mother of b.
OK! I learned something.
> m is the mother of c.
OK! I learned something.
> m is the mother of d.
OK! I learned something.
> who are the siblings of a?
The sibling/s of a is/are b, c, d
> who are the siblings of b?
The sibling/s of b is/are a, c, d
> who are the siblings of c?
The sibling/s of c is/are a, b, d
> who are the siblings of d?
The sibling/s of d is/are a, b, c
```

```
> f is the father of a.
OK! I learned something.
> f is the father of b.
OK! I learned something.
> f is the father of c.
OK! I learned something.
> f is the father of d.
OK! I learned something.
> who are the siblings of a?
The sibling/s of a is/are b, c, d
> who are the siblings of b?
The sibling/s of b is/are a, c, d
> who are the siblings of c?
The sibling/s of c is/are a, b, d
> who are the siblings of d?
The sibling/s of d is/are a, b, c
```

→ Assignment of Mother and Father on-to different siblings (correct)
→ Asking (using who are the siblings of _?) Siblings for each sibling (correct)
→ Assignment of Parent to Child on-to different siblings (correct)
→ Asking (using who are the siblings of _?) Siblings for each sibling (correct)

```
> m and f are the parents of a.
OK! I learned something.
> m and f are the parents of b.
OK! I learned something.
> m and f are the parents of c.
OK! I learned something.
> m and f are the parents of d.        > a, b, c, and d are children of p.
OK! I learned something.               OK! I learned something.
> who are the siblings of a?           > who are the siblings of a?
The sibling/s of a is/are b, c, d      The sibling/s of a is/are b, c, d
> who are the siblings of b?           > who are the siblings of b?
The sibling/s of b is/are a, c, d      The sibling/s of b is/are a, c, d
> who are the siblings of c?           > who are the siblings of c?
The sibling/s of c is/are a, b, d      The sibling/s of c is/are a, b, d
> who are the siblings of d?           > who are the siblings of d?
The sibling/s of d is/are a, b, c      The sibling/s of d is/are a, b, c
```

→ Assignment of Parent on-to a child (correct)
→ Assignment of Parent on-to different siblings (correct)
→ Asking (using who are the siblings of _?) Siblings for each sibling (correct)

```
> a is a child of p.
OK! I learned something.
> b is a child of p.
OK! I learned something.
> c is a child of p.
OK! I learned something.
> d is a child of p.
OK! I learned something.
> who are the siblings of a?
The sibling/s of a is/are b, c, d
> who are the siblings of b?
The sibling/s of b is/are a, c, d
> who are the siblings of c?
The sibling/s of c is/are a, b, d
> who are the siblings of d?
The sibling/s of d is/are a, b, c
```

→ Assignment of Daughter to Parent on-to a child (correct)
→ Assignment of Daughter to Parent on-to different siblings (correct)
→ Asking (using who are the siblings of _?) Siblings for each sibling (correct)
→ Assignment of Son to Parent on-to a child (correct)
→ Assignment of Son to Parent on-to different siblings (correct)
→ Asking (using who are the siblings of _?) Siblings for each sibling (correct)

***** For the past 7 testcases output of who are the siblings of _?
***** Are in the same order for all of 7 of the testcases
***** All of which has somekind of Parent to Child Relationship

```
> a is a daughter of p.
OK! I learned something.
> b is a daughter of p.
OK! I learned something.
> c is a daughter of p.
OK! I learned something.
> d is a daughter of p.
OK! I learned something.
> who are the siblings of a?
The sibling/s of a is/are b, c, d
> who are the siblings of b?
The sibling/s of b is/are a, c, d
> who are the siblings of c?
The sibling/s of c is/are a, b, d
> who are the siblings of d?
The sibling/s of d is/are a, b, c
```

```
> a is a son of p.
OK! I learned something.
> b is a son of p.
OK! I learned something.
> c is a son of p.
OK! I learned something.
> d is a son of p.
OK! I learned something.
> who are the siblings of a?
The sibling/s of a is/are b, c, d
> who are the siblings of b?
The sibling/s of b is/are a, c, d
> who are the siblings of c?
The sibling/s of c is/are a, b, d
> who are the siblings of d?
The sibling/s of d is/are a, b, c
```

→ Assignment of Aunt on-to different siblings (correct)
→ Asking (using who are the siblings of _?) Siblings for each sibling (correct)
→ Assignment of Uncle on-to different siblings (correct)
→ Asking (using who are the siblings of _?) Siblings for each sibling (correct)

```
> an is an aunt of a.
OK! I learned something.
> an is an aunt of b.
OK! I learned something.
> an is an aunt of c.
OK! I learned something.
> an is an aunt of d.
OK! I learned something.
> who are the siblings of a?
a has no siblings.
> who are the siblings of b?
b has no siblings.
> who are the siblings of c?
c has no siblings.
> who are the siblings of d?
d has no siblings.
```

```
> u is an uncle of a.
OK! I learned something.
> u is an uncle of b.
OK! I learned something.
> u is an uncle of c.
OK! I learned something.
> u is an uncle of d.
OK! I learned something.
> who are the siblings of a?
a has no siblings.
> who are the siblings of b?
b has no siblings.
> who are the siblings of c?
c has no siblings.
> who are the siblings of d?
d has no siblings.
```

→ Assignment of GrandMother on-to different siblings (correct)
→ Asking (using who are the siblings of _?) Siblings for each sibling (correct)
→ Assignment of GrandFather on-to different siblings (correct)
→ Asking (using who are the siblings of _?) Siblings for each sibling (correct)

```
> gm is a grandmother of a.        > gf is a grandfather of a.
OK! I learned something.           OK! I learned something.
> gm is a grandmother of b.        > gf is a grandfather of b.
OK! I learned something.           OK! I learned something.
> gm is a grandmother of c.        > gf is a grandfather of c.
OK! I learned something.           OK! I learned something.
> gm is a grandmother of d.        > gf is a grandfather of d.
OK! I learned something.           OK! I learned something.
> who are the siblings of a?       > who are the siblings of a?
a has no siblings.                 a has no siblings.
> who are the siblings of b?       > who are the siblings of b?
b has no siblings.                 b has no siblings.
> who are the siblings of c?       > who are the siblings of c?
c has no siblings.                 c has no siblings.
> who are the siblings of d?       > who are the siblings of d?
d has no siblings.                 d has no siblings.
```

→ Testing Sister and Brother

    → Assignment Sister (correct)
    → Asking Sister (correct)
    → Assignment Brother (correct)
    → Asking Brother(correct)

```
> s is a sister of b.
OK! I learned something.
> is s a sister of b?
Yes!
> b2 is a brother of s2.
OK! I learned something.
> is b2 a brother of s2?
Yes!
```

    → Assignment of a person to be both a Brother and Sister on a different person forward backwards (correct)
    → Asking Sister and Brother on both the assigned person forward backwards (correct)

```
> s is a sister of b.
OK! I learned something.
> s is a brother of b2.
That's impossible!
> is s a sister of b?
Yes!
> is s a brother of b?
No!
> is s a sister of b2?
No!
> is s a brother of b2?
No!
```

```
> s2 is a brother of b3.
OK! I learned something.
> s2 is a sister of b4.
That's impossible!
> is s2 a sister of b3?
No!
> is s2 a brother of b3?
Yes!
> is s2 a sister of b4?
No!
> is s2 a brother of b4?
No!
```

→ Assignment of a Siblings (correct)
→ Asking Sister and Brother on both the assigned Siblings (correct)
→ Assignment of Mother to both Child (correct)
→ Asking Sister and Brother on both the assigned Children (correct)
→ Assignment of Father to both Child (correct)
→ Asking Sister and Brother on both the assigned Children (correct)

```
> s and b are siblings.
OK! I learned something.
> is s a sister of b?
No!
> is s a brother of b?
No!
> is b a sister of s?
No!
> is b a brother of b?
No!
```

```
> m is the mother of s.
OK! I learned something.
> m is the mother of b.
OK! I learned something.
> is s a sister of b?
No!
> is s a brother of b?
No!
> is b a sister of s?
No!
> is b a brother of b?
No!
```

```
> f is the father of s.
OK! I learned something.
> f is the father of b.
OK! I learned something.
> is s a sister of b?
No!
> is s a brother of b?
No!
> is b a sister of s?
No!
> is b a brother of b?
No!
```

→ Assignment multiple Sister on a person (correct)
→ Asking Sister (using who are the sisters of _?) (correct)
→ Assignment multiple Brother on a person (correct)
→ Asking Brother (using who are the brothers of _?) (correct)

```
> s is a sister of b.            > b is a brother of s.
OK! I learned something.         OK! I learned something.
> s2 is a sister of b.           > b2 is a brother of s.
OK! I learned something.         OK! I learned something.
> s3 is a sister of b.           > b3 is a brother of s.
OK! I learned something.         OK! I learned something.
> s4 is a sister of b2.          > b4 is a brother of s2.
OK! I learned something.         OK! I learned something.
> who are the sisters of b?      > who are the brothers of s?
The sister/s of b is/are s2, s3, s  The brother/s of s is/are b2, b3, b
> who are the sisters of b2?     > who are the brothers of s2?
The sister/s of b2 is/are s4     The brother/s of s2 is/are b4
```

→ Testing Mother and Father

→ Assignment Mother (correct)
→ Asking Mother (correct)
→ Assignment Father (correct)
→ Asking Father (correct)

```
> m is the mother of c.
OK! I learned something.
> is m the mother of c?
Yes!
> f is the father of c2.
OK! I learned something.
> is f the father of c2?
Yes!
```

→ Assignment Mother to same child (correct)
→ Asking Mother (correct)
→ Assignment Father to same child (correct)
→ Asking Father (correct)
→ Asking Parents of the same child (correct)

```
> m is the mother of c.
OK! I learned something.
> is m the mother of c?
Yes!
> f is the father of c.
OK! I learned something.
> is f the father of c?
Yes!
> who are the parents of c?
The parent/s of c is/are f, m
```

→ Assignment of multiple Mothers to same child (correct)

→ Asking Mother (correct)
→ Assignment of multiple Father to same child (correct)
→ Asking Father (correct)
→ Asking Parents of the same child (correct)
***** although the assignment of mother and father same w previous testcase
***** when asked the parents; It gave the correct answer but different order

```
> m is the mother of c.
OK! I learned something.
> is m the mother of c?
Yes!
> m2 is the mother of c.
That's impossible!
> is m2 the mother of c?
No!
> f is the father of c.
OK! I learned something.
> is f the father of c?
Yes!
> f2 is the father of c.
That's impossible!
> is f2 the father of c?
No!
> who are the parents of c?
The parent/s of c is/are m, f
```

→ Assignment of Parent to Child (correct)
→ Assignment of Mother (correct)
→ Asking Mother (correct)
→ Assignment of Father (correct)
→ Asking Father (correct)
→ Asking Parents of the same child (correct)

```
> a is a child of p.
OK! I learned something.
> who are the parents of a?
The parent/s of a is/are p
> m is the mother of a.
OK! I learned something.
> p is the mother of a.
That's impossible!
> who is the mother of a?
The mother of a is m.
> is m the mother of a?
Yes!
> is p the mother of a?
No!
```

```
> who are the parents of a?
The parent/s of a is/are m, p
> p is the father of a.
OK! I learned something.
> who is the father of a?
The father of a is p.
> is m the father of a?
No!
> is p the father of a?
Yes!
> who are the parents of a?
The parent/s of a is/are m, p
```

→ Testing Grandfather and Grandmother

→ Assignment of Grandmother (correct)
→ Asking Grandmother (correct)
→ Assignment of Grandfather (correct)
→ Asking Grandfather (correct)

```
> gm is a grandmother of a.
OK! I learned something.
> is gm a grandmother of a?
Yes!
> gf is a grandfather of a.
OK! I learned something.
> is gf a grandfather of a?
Yes!
```

→ Assignment of Grandmother (correct)
→ Assignment of Siblings (correct)
→ Asking Grandmother on newly assigned sibling (correct)
→ Assignment of Sister relationship with siblings (correct)
→ Assignment of Grandfather (correct)
→ Asking Grandfather on new sibling (correct)

```
> gm is a grandmother of a.
OK! I learned something.
> a and b are siblings.
OK! I learned something.
> is gm a grandmother of b?
Yes!
> b is a sister of c.
OK! I learned something.
> gf is a grandfather of a.
OK! I learned something.
> is gf a grandfather of c?
Yes!
```

→ Assignment of Grandmother by Mother of Mother (correct)
→ Assignment of Mother Child (correct)
→ Asking Grandmother on Child (correct)
→ Assignment of Grandfather by Father of Father (correct)
→ Assignment of Father Child (correct)
→ Asking Grandfather on Child (correct)
→ Assignment of siblings on two different Families (correct)
→ Asking Parents of Children (correct)
→ Asking Grandmother on Child wo Grandmother prior (correct)

→ Asking Grandfather on Child wo Grandfather prior (correct)

```
> gm is the mother of m.
OK! I learned something.
> m is the mother of a.
OK! I learned something.
> is gm a grandmother of a?
Yes!
> gf is the father of f.
OK! I learned something.
> f is the father of b.
OK! I learned something.
> is gf a grandfather of b?
Yes!
```

```
> a and b are siblings.
OK! I learned something.
> who are the parents of b?
The parent/s of b is/are m, f
> is gm a grandmother of b?
Yes!
> who are the parents of a?
The parent/s of a is/are m, f
> is gf a grandfather of a?
Yes!
```

→ Assignment of Grandmother by Mother of Aunt (correct)
→ Assignment of Sister of Aunt and Mother (correct)
→ Assignment of Mother Child (correct)
→ Asking Grandmother on Child (correct)
→ Assignment of Grandfather by Father of Uncle (correct)
→ Assignment of Brother of Uncle and Father (correct)
→ Assignment of Father Child (correct)
→ Asking Grandfather on Child (correct)
→ Assignment of siblings on two different Families (correct)
→ Asking Parents of Children (correct)
→ Asking Grandmother on Child wo Grandmother prior (correct)
→ Asking Grandfather on Child wo Grandfather prior (correct)

```
> gm is the mother of an.
OK! I learned something.
> an is a sister of m.
OK! I learned something.
> m is the mother of a.
OK! I learned something.
> is gm a grandmother of a?
Yes!
> gf is the father of un.
OK! I learned something.
> un is a brother of f.
OK! I learned something.
> f is the father of b.
OK! I learned something.
```

```
> is gf a grandfather of b?
Yes!
> a and b are siblings.
OK! I learned something.
> who are the parents of a?
The parent/s of a is/are m, f
> who are the parents of b?
The parent/s of b is/are m, f
> is gm a grandmother of b?
Yes!
> is gf a grandfather of a?
Yes!
```

→ Assignment of Grandmother by Mother of Aunt (correct)
→ Assignment of Aunt to Child (correct)
→ Asking Grandmother on Child (correct)
→ Assignment of Grandfather by Father of Uncle (correct)
→ Assignment of Uncle to Child (correct)

→ Asking Grandfather on Child (correct)
→ Assignment of siblings on two different Children (correct)
→ Asking Parents of Children (correct)
→ Asking Grandmother on Child wo Grandmother prior (correct)
→ Asking Grandfather on Child wo Grandfather prior (correct)

```
> gm is the mother of an.
OK! I learned something.
> an is an aunt of a.               > a and b are siblings.
OK! I learned something.            OK! I learned something.
> is gm a grandmother of a?         > who are the parents of a?
Yes!                                a has no parents.
> gf is the father of un.           > who are the parents of b?
OK! I learned something.            b has no parents.
> un is an uncle of b.              > is gm a grandmother of b?
OK! I learned something.            Yes!
> is gf a grandfather of b?         > is gf a grandfather of a?
Yes!                                Yes!
```

→ Testing Parent to Child

→ Assignment of Children to Parent (using _ is a child of _) (correct)
→ Asking Parent of Child (using who are the parents of _?) (correct)

```
> a is a child of p.
OK! I learned something.
> a is a child of p2.
OK! I learned something.
> a is a child of p3.
That's impossible!
> who are the parents of a?
The parent/s of a is/are p, p2
```

→ Assignment of Children to Parent (using _ is a child of _) (correct)
→ Assignment of Children to Parent Reverse (using _ is a child of _) (correct)

```
> a is a child of p.
OK! I learned something.
> p is a child of a.
That's impossible!
```

→ Assignment of Children to Parent (using _ is a child of _) (correct)

→ Assignment of Mother to Child (correct)
→ Assignment of Father to Child (correct)

```
> a is a child of p.
OK! I learned something.
> m is the mother of a.
OK! I learned something.
> f is the father of a.
That's impossible!
```

→ Assignment of Children to Parent (using _ and _ are children of _) (correct)
→ Asking Children of Parent (using who are the children of _?) (correct)
→ Assignment of Children to Parent (using _, and _ are children of _) (correct)
→ Asking Children of Parent (using who are the children of _?) (correct)
→ Assignment of Children to Parent (using _, _, and _ are children of _) (correct)
→ Asking Children of Parent (using who are the children of _?) (correct)

```
> a and b are children of p.
OK! I learned something.
> who are the children of p?
The child/ren of p is/are b, a
> c, d, and e are children of p.
OK! I learned something.
> who are the children of p?
The child/ren of p is/are b, e, a, c, d
> f, g, h, and i are children of p.
OK! I learned something.
> who are the children of p?
The child/ren of p is/are f, h, g, b, e, a, c, d, i
```

→ Assignment of Children to Parent (using _ and _ are children of _) (correct)
→ Asking Children of Parent (using who are the children of _?) (correct)
→ Assignment of Children to Parent (using _, and _ are children of _) (correct)
→ Asking Children of Parent (using who are the children of _?) (correct)
→ Assignment of Children to Parent (using _, _, and _ are children of _) (correct)
→ Asking Children to Parent relationship on both Parents (using are _, _, and _ children of _?) (correct)

```
> a is a child of p.                    > are a, b, and c children of p?
OK! I learned something.                They are the children of p.
> b is a daughter of p.                 > are d, e, and f children of p?
OK! I learned something.                They are the children of p.
> c is a son of p.                      > are a, b, and h children of p?
OK! I learned something.                They are not the children of p.
> d, e, and f are children of p.        > are a, b, and c children of p2?
OK! I learned something.                They are the children of p2.
> a and g are siblings.                 > are d, e, and f children of p2?
OK! I learned something.                They are the children of p2.
> g is a child of p2.                   > are a, b, and h children of p2?
OK! I learned something.                They are not the children of p2.
```

→ Assignment of Children to Parent with the Child being the Parent (using _, and _ are children of _) (correct)

→ Asking Children of Parent (using who are the children of _?) (correct)

→ Assignment of Children to Parent with a duplicate of the same Child (using _, and _ are children of _) (correct)

→ Asking Children of Parent (using who are the children of _?) (correct)

```
> a, b, and c are children of a.        > a, a, and b are children of c.
That's impossible!                      That's impossible!
> who are the children of a?            > who are the children of c?
a has no children.                      c has no children.
```

→ Assignment of all Child to Parent relationships independently and dependently (sibling) (correct)

→ Asking Mother and Father to Child relationship to all Child to Parent relationship (correct)

```
> a is a child of p.
OK! I learned something.
> b is a daughter of p.
OK! I learned something.
> c is a son of p.
OK! I learned something.
> d, e, and f are children of p.
OK! I learned something.
> a and g are siblings.
OK! I learned something.
> is p the mother of a?
No!
> is p the father of a?
No!
> is p the mother of b?
No!
> is p the father of b?
No!
```

```
> is p the mother of c?
No!
> is p the father of c?
No!
> is p the mother of d?
No!
> is p the father of d?
No!
> is p the mother of e?
No!
> is p the father of e?
No!
> is p the mother of f?
No!
> is p the father of f?
No!
> is p the mother of g?
No!
> is p the father of g?
No!
```

→ Assignment of various Child to Parent relationships (correct)
→ Asking Parents of a Child with a nonexistent Parent (correct)
→ Assignment of second Parent on one Child (correct)
→ Asking Parents of all the Children with the second Parent assigned on one Child (correct)

```
> a is a child of p.
OK! I learned something.
> b is a daughter of p.
OK! I learned something.
> c is a son of p.
OK! I learned something.
> d, e, and f are children of p.
OK! I learned something.
> a and g are siblings.
OK! I learned something.
> are p and a the parents of c?
No!
> g is a child of p2.
OK! I learned something.
> are p and p2 the parents of a?
Yes!
```

```
> are p and p2 the parents of b?
Yes!
> are p and p2 the parents of c?
Yes!
> are p and p2 the parents of d?
Yes!
> are p and p2 the parents of e?
Yes!
> are p and p2 the parents of f?
Yes!
> are p and p2 the parents of g?
Yes!
> are p and p2 the parents of h?
No!
```

→ Assignment of Child to Parent complete Family (correct)
→ Assignment of Child to Parent broken Family (correct)
→ Assignment of Children from both Families into the Family of each other (correct)
→ Asking Parents of the Children (correct)

```
> a is a child of p.
OK! I learned something.
> b is a child of p2.
OK! I learned something.
> a and b are siblings.
OK! I learned something.
> who are the parents of a?
The parent/s of a is/are p, p2
> c is a child of p3.
OK! I learned something.
> who are the parents of c?
The parent/s of c is/are p3
> a, b, and c are children of p.
That's impossible!
> a, b, and c are children of p2.
That's impossible!
> a, b, and c are children of p3.
That's impossible!
```

```
> a, b, and c are children of p4.
That's impossible!
> c, b, and a are children of p.
That's impossible!
> c, b, and a are children of p2.
That's impossible!
> c, b, and a are children of p3.
That's impossible!
> c, b, and a are children of p4.
That's impossible!
> who are the parents of a?
The parent/s of a is/are p, p2
> who are the parents of b?
The parent/s of b is/are p, p2
> who are the parents of c?
The parent/s of c is/are p3
```

→ Assignment of Child to Parent complete Family (correct)
→ Assignment of another Child to Parent complete Family (correct)
→ Assignment of Children from both Families into the Family of each other (correct)
→ Asking Parents of the Children (correct)

```
> a is a child of p.
OK! I learned something.
> b is a child of p2.
OK! I learned something.
> a and b are siblings.
OK! I learned something.
> who are the parents of a?
The parent/s of a is/are p, p2
> c is a child of p3.
OK! I learned something.
> d is a child of p4.
OK! I learned something.
> c and d are siblings.
OK! I learned something.
> who are the parents of c?
The parent/s of c is/are p4, p3
> a, b, and c are children of p.
That's impossible!
> a, b, and c are children of p2.
That's impossible!
```

```
> a, b, and c are children of p3.
That's impossible!
> a, b, and c are children of p4.
That's impossible!
> c, b, and a are children of p.
That's impossible!
> c, b, and a are children of p2.
That's impossible!
> c, b, and a are children of p3.
That's impossible!
> c, b, and a are children of p4.
That's impossible!
> who are the parents of a?
The parent/s of a is/are p, p2
> who are the parents of b?
The parent/s of b is/are p, p2
> who are the parents of c?
The parent/s of c is/are p4, p3
> who are the parents of d?
The parent/s of d is/are p4, p3
```

→ Assignment of Daughter to Parent (correct)

→ Assignment of Son to Parent on a different Parent (correct)
→ Asking Daughter of Parent with Daughter (correct)
→ Asking Son of Parent with Son (correct)

```
> d is a daughter of p.
OK! I learned something.
> s is a son of p2.
OK! I learned something.
> is d a daughter of p?
Yes!
> is s a son of p2?
Yes!
```

→ Assignment of Daughter to Parent (correct)
→ Assignment of Son to Parent on a different Parent (correct)
→ Assignment of another Daughter to Parent (correct)
→ Assignment of another Son to Parent on the other Parent (correct)
→ Asking All the Daughters and All the Sons of Parent with Daughter (correct)
→ Asking All the Daughters and All the Sons of Parent with Son (correct)
→ Asking All the Sons of Parent with Son (correct)
→ Assignment of Siblings between to Children (correct)
→ Asking All Daughters and Sons from both Parents (correct)

```
> d is a daughter of p.
OK! I learned something.
> s is a son of p2.
OK! I learned something.
> d2 is a daughter of p.
OK! I learned something.
> s2 is a son of p2.
OK! I learned something.
> who are the sons of p?
p has no sons.
> who are the daughters of p?
The daughter/s of p is/are d2, d
> who are the sons of p2?
The son/s of p2 is/are s, s2
```

```
> who are the daughters of p2?
p2 has no daughters.
> s and d are siblings.
OK! I learned something.
> who are the sons of p?
The son/s of p is/are s, s2
> who are the daughters of p?
The daughter/s of p is/are d2, d
> who are the sons of p2?
The son/s of p2 is/are s, s2
> who are the daughters of p2?
The daughter/s of p2 is/are d2, d
```

→ Testing Relatives

→ Assignment of ALL Relationships (correct)
→ Asking Relation with All Relationships explicitly created (correct)

```
> a and b are siblings.
OK! I learned something.
> are a and b relatives?
Yes!
> c is a sister of d.
OK! I learned something.
> are c and d relatives?
Yes!
> e is a brother of f.
OK! I learned something.
> are e and f relatives?
Yes!
> g is the mother of h.
OK! I learned something.
> are g and h relatives?
Yes!
> i is the father of j.
OK! I learned something.
> are i and j relatives?
Yes!
> k is a child of l.
OK! I learned something.
> are k and l relatives?
Yes!
> m is a daughter of n.
OK! I learned something.
> are m and n relatives?
Yes!
> o is a son of p.
OK! I learned something.
> are o and p relatives?
Yes!
> q is an uncle of r.
OK! I learned something.
> are q and r relatives?
Yes!
> s is an aunt of t.
OK! I learned something.
> are s and t relatives?
Yes!
```

```
> u and v are the parents of w.
OK! I learned something.
> are u and w relatives?
Yes!
> are u and v relatives?
No!
> are v and w relatives?
Yes!
> x is a grandmother of y.
OK! I learned something.
> are x and y relatives?
Yes!
> z is a grandfather of aa.
OK! I learned something.
> are z and aa relatives?
Yes!
> ab, ac, and ad are children of ae.
OK! I learned something.
> are ab and ac relatives?
Yes!
> are ab and ad relatives?
Yes!
> are ab and ae relatives?
Yes!
> are ac and ad relatives?
Yes!
> are ac and ae relatives?
Yes!
> are ad and ae relatives?
Yes!
```

→ **Sample family**

→ Assignment of the Family (correct)
→ Asking Relation of a to All Family (correct)
→ gm2 and a are not Relatives because is the Grandmother of her cousin which
could be the Grandparent of the spouse of her Aunt

```
> a is a child of m.
OK! I learned something.
> f is the father of b.
OK! I learned something.
> a is a sister of b.
OK! I learned something.
> b and d are siblings.
OK! I learned something.
> an is an aunt of b.
OK! I learned something.
> c is a son of an.
OK! I learned something.
> uc is a brother of f.
OK! I learned something.
> gm is the mother of an.
OK! I learned something.
> gf is the father of an.
OK! I learned something.
> gf2 is a grandfather of d.
OK! I learned something.
> gm2 is a grandmother of c.
OK! I learned something.
```

```
> are a and b relatives?
Yes!
> are a and c relatives?
No!
> are a and d relatives?
Yes!
> are a and m relatives?
Yes!
> are a and f relatives?
Yes!
> are a and an relatives?
Yes!
> are a and uc relatives?
Yes!
> are a and gm relatives?
Yes!
> are a and gf relatives?
Yes!
> are a and gm2 relatives?
No!
> are a and gf2 relatives?
Yes!
```