Questions 1-5

Question 1

1/1 point (graded)

Which of the following scope contours is correct for this program?

a, b, foo

```
(define a 1)
(define b 2)

(local [(define a 3)
          (define (foo b) (+ a b))]
  (foo (+ b 1)))
```

a, b, foo

```
(define a 1)
(define b 2)
                                  a
(local [(define a 3)
          (define (foo b) (+ a b))]
  (foo (+ b 1)))
```

a, b

```
(define a 1)
(define b 2)
                                  a, foo
(local [(define a 3)
          (define (foo b) (+ a b))]
  (foo (+ b 1)))
```

```
(define a 1)
(define b 2)
                                  a, b, foo
(local [(define a 3)
          (define (foo b) (+ a b))]
  (foo (+ b 1)))
```

✔

Explanation

The definitions that are recorded in the scope of the whole program (blue) are `a` and `b`, and the definitions that are recorded in the scope of the local expression (red) are `a` and `foo`, since they are defined inside the local expression.

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Answers are displayed within the problem

Question 2

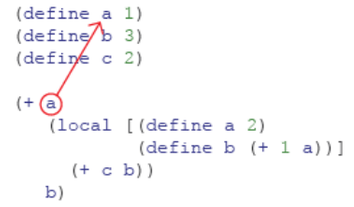
1/1 point (graded)

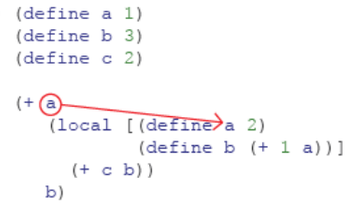
Consider the following program:

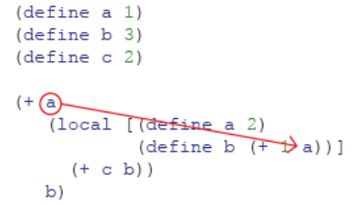
```
(define a 1)
(define b 3)
(define c 2)

(+ a
   (local [(define a 2)
           (define b (+ 1 a))]
     (+ c b))
   b)
```

Which of the following is the correct reference for the circled a?

- (selected)



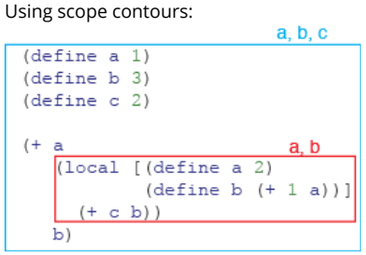




✔

Explanation

Using scope contours:



The reference should go to the definition of a in the nearest closing box, which is `(define a 1)` in this case.

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Answers are displayed within the problem

Question 3

1/1 point (graded)

Which of the following is the correct reference for the circled a?

```
(define a 1)
(define b 3)
(define c 2)

(+ a
   (local [(define a 2)
           (define b (+ 1 a))]
     (+ c b))
   b)
```

```
(define a 1)
(define b 3)
(define c 2)

(+ a
   (local [(define a 2)
           (define b (+ 1 a))]
     (+ c b))
   b)
```

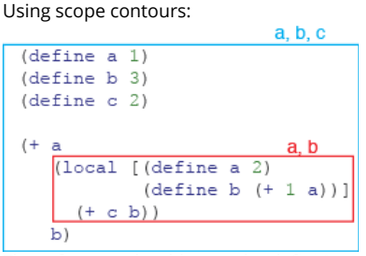
```
(define a 1)
(define b 3)
(define c 2)

(+ a
   (local [(define a 2)
           (define b (+ 1 a))]
     (+ c b))
   b)
```

✔

Explanation

Using scope contours:



The reference should go to the definition of a in the nearest closing box, which is `(define a 2)` in this case.

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Question 4

1/1 point (graded)

Which of the following is the correct reference for the circled b?

```
(define a 1)
(define b 3)
(define c 2)

(+ a
   (local [(define a 2)
           (define b (+ 1 a))]
     (+ c b))
   b)
```

```
(define a 1)
(define b 3)
(define c 2)

(+ a
   (local [(define a 2)
           (define b (+ 1 a))]
     (+ c b))
   b)
```

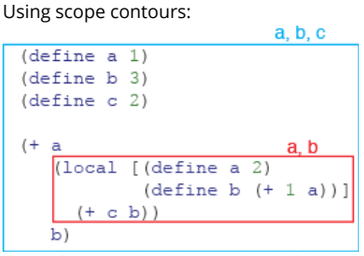
```
(define a 1)
(define b 3)
(define c 2)

(+ a
   (local [(define a 2)
           (define b (+ 1 a))]
     (+ c b))
   b)
```

✔

Explanation

Using scope contours:



The reference should go to the definition of b in the nearest closing box, which is `(define b (+ 1 a)` in this case.

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Answers are displayed within the problem

Question 5

1/1 point (graded)

Which of the following is the correct reference for the circled b?

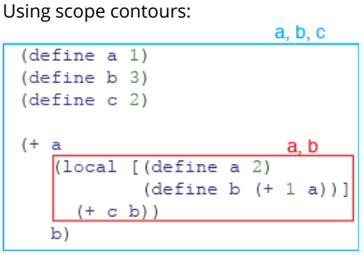
```
(define a 1)
(define b 3)
(define c 2)

(+ a
   (local [(define a 2)
           (define b (+ 1 a))]
     (+ c b))
   b)
```

```
(define a 1)
(define b 3)
(define c 2)

(+ a
   (local [(define a 2)
           (define b (+ 1 a))]
     (+ c b))
   b)
```

```
(define a 1)
(define b 3)
(define c 2)

(+ a
   (local [(define a 2)
           (define b (+ 1 a))]
     (+ c b))
   b)
```

Explanation

Using scope contours:



The reference should go to the definition of `b` in the nearest closing box, which is `(define b 3)` in this case.

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Answers are displayed within the problem