```
            185
1/16/2018
504325272

           #1

  = 1
  = \  -> case   of {      -> 334;        -> 138;           -> 99}
  = \  ->    + 4
           = \  -> case   of {      ->          ;        ->      ;           ->       }

1. let   = 4 + 5 in (3 *  )
=>  3 * (4 + 5)                                                                          let

=>  3 * (9)

=>  27


2. (\  -> 3 *  ) (4 + 5)
=>  3 * (4 + 5)

=>  3 * (9)

=>  27


3. ((\  -> (\  ->   + (3 *  ))) 4) 1
=>  ((\  -> (  + (3 * 4)) 1

=>  (1 + (3 * 4))

=>  1 + 12

=>  13


4. let   = 4 in (let   = 1 in (  + (3 *  )))
=>  let   = 4 in (  + (3 * 1))                                                            let

=>  4 + (3 * 1)                                                                          let

=>  4 + 3

=>  7


5. let   = 4 in (let   = 1 +   in (  + (3 *  )))
=>  let   = 4 in (  + (3 * (1 +  )))                                                      let

=>  4 + (3 * (1 + 4))                                                                    let

=>  4 + (3 * 5)

=>  4 + 15

=>  19


6. ((\  -> (\  ->   + (3 *  ))) 4) 1
=>  ((\  -> [4/ ]  + (3 *  ))) 1

=>  [4/ ]1 + (3 * 1)

=>  [4/ ]1 + 3

=>  [4/ ]4


7. ((\  -> (\  ->   + (3 *  ))) 4) 1
```

```
=⇒  ((\  -> 4 + (3 * 4))) 1

=⇒  [1/ ]4 + (3 * 4)

=⇒  [1/ ]4 + 12

=⇒  [1/ ]16


8. (\  ->   + ((\  -> 3* ) 4)) 5
=⇒  (\  ->   + (3 * 4)) 5

=⇒  5 + (3 * 4)

=⇒  5 + 12

=⇒  17


9. (\  -> ((\  -> 3* ) 4) +  ) 5
=⇒  (\  -> (3 * 4) +  ) 5

=⇒  (3 * 4) + 5

=⇒  12 + 5

=⇒  17


10. (\  ->   * (let   = 3*2 in (  + 7)) +  ) 4
=⇒  (\  ->   * ((3 * 2) + 7) +  ) 4                                                    let

=⇒  4 * (((3 * 2) + 7) + 4)

=⇒  4 * ((6 + 7) + 4)

=⇒  4 * (13 + 4)

=⇒  4 * 17

=⇒  68


11.   ((let   = 4 in (\  ->   +  )) 2)
=⇒    ((\  -> 4 +  ) 2)                                                                let

=⇒    (4 + 2)

=⇒  \  ->   + 4 (4 + 2)

=⇒  (\  ->   + 4 (6))

=⇒  6 + 4

=⇒  10


12. let   = 5 in (\  ->   *  )
=⇒  (\  -> 5 *  )                                                                      let

=⇒  \  -> 5 *


13.   ((\   ->       ) (\  ->            ))
=⇒    ((\  ->            )     )

=⇒    ((\  -> case   of {     ->         ;       ->     ;          ->      })     )

=⇒    (case      of {     ->         ;       ->     ;          ->      })

=⇒    (       )
```

```
case
=⇒  (\  -> case   of {     -> 334;       -> 138;          -> 99})

=⇒  case          of {     -> 334;       -> 138;          -> 99}
case
=⇒  99
case

14. ((\  -> (\  ->   (   )))            )
=⇒  ((\  ->   (             )))

=⇒  (             )


15.             (case       of {     ->      ;       ->     ;          ->         })
=⇒              (    )
case
=⇒  \  -> case   of {     ->         ;       ->     ;          ->      }

=⇒  case      of {     ->         ;       ->     ;          ->      }

=⇒
case

16. (case (        ) of {     ->            ;       -> (\  ->         )})
=⇒  [    / ](\  ->         )
case
=⇒  [    / ][     / ]


17. case (    (                )) of {     ->  ;       -> (  +    )}
=⇒  case (    (\  -> case   of {     ->         ;       ->     ;          ->      }     )) of {     ->  ;
      -> (  +    )}
=⇒  case (    (case      of {     ->         ;       ->     ;          ->      })) of {     ->  ;       ->
(  +    )}
=⇒  case (            ) of {     ->  ;       -> (  +    )}
                                                                          case
=⇒  case (            ) of {     ->  ;       -> (  + (\  -> case   of {     -> 334;       -> 138;
-> 99}  ))}
=⇒  case (            ) of {     -> 1;       -> (1 + (\  -> case   of {     -> 334;       -> 138;
-> 99}  ))}
=⇒  [        / ](1 + (\  -> case   of {     -> 334;       -> 138;          -> 99}  ))

=⇒  1 + (\  -> case   of {     -> 334;       -> 138;          -> 99}         )

=⇒  1 + (case          of {     -> 334;       -> 138;          -> 99})
                                                             case
=⇒  1 + 99


=⇒  100



18. let   = 2 in (case (    (                )) of {     ->  ;       -> (  +    )} +  )
=⇒  let   = 2 in (case (    (\  -> case   of {     ->         ;       ->     ;          ->      }     )) of
 {     ->  ;       -> (  +    )} +  )
=⇒  let   = 2 in (case (    (case      of {     ->         ;       ->     ;          ->      } )) of {
->  ;       -> (  +    )} +  )
=⇒  let   = 2 in (case (            ) of {     ->  ;       -> (  +    )} +  )
                                                                    case
=⇒  let   = 2 in [        / ](  +    )} +


=⇒  let   = 2 in (  +           ) +


=⇒  let   = 2 in (  + (\  -> case   of {     -> 334;       -> 138;          -> 99}         )) +

=⇒  let   = 2 in (  + (case          of {     -> 334;       -> 138;          -> 99})) +
                                                             case
```

```
=⇒  let    = 2 in (  + 99) +


=⇒  let    = 2 in (1 + 99) +


=⇒  let    = 2 in 100 +

                          let
=⇒  100 + 2


=⇒  102




\  -> case    of {      ->          ;        ->      ;           ->       }
\  -> case    of {      -> 334;         -> 138;           -> 99}
```