

1. Thoroughly explain how to use base blocks to add the following. Be sure to include the block answer and the numeric answer.

(a) $1602 + 347$

(b) $2061 + 382$

(c) $579 + 238$

(d) $544 + 962$

(e) $3007 + 928$

2. Now thoroughly explain how to use base blocks to subtract the following. Be sure to include the block answer and the numeric answer.

(a) $1602 - 347$

(b) $2061 - 382$

(c) $579 - 238$

(d) $962 - 544$

(e) $3007 - 928$

3. Thoroughly explain how to use an abacus to compute the following:

(a) $1602 - 347$

(b) $2061 + 382$

(c) $579 + 238$

(d) $544 + 962$

(e) $3007 - 928$

4. Draw a place value card to compute the following. Show trades neatly and clearly, but you do not need to explain anything. Do write the final numeric answer under the correct columns in your card.

(a) $1602 - 347$

(b) $2061 + 382$

(c) $579 + 238$

(d) $544 + 962$

(e) $3007 - 928$

1. (a) $1602 + 347$ – Set out 1 cube, 6 flats, and 2 units. Also set out 3 flats, 4 longs, and 7 units. Combine them. We have 1 cube, 9 flats, 4 longs, and 9 units. That means $1602 + 347 = 1,949$.
 - (b) $2061 + 382$ – Set out 2 cubes, 6 longs, and 1 unit. Also set out 3 flats, 8 longs, and 2 units. Push them together. We have too many longs now (14 longs), so trade 10 longs for 1 more flat. Now we have 2 cubes, 4 flats (3 original plus the 1 more we got for trade), 4 longs, and 3 units. Numeric answer: $2061 + 382 = 2443$.
 - (c) $579 + 238$ – Set out 5 flats, 7 longs, and 9 units. Also set out 2 flats, 3 longs, and 8 units. When we push them together, we have way too many longs and units. So trade 10 of our 17 units for 1 more long, and trade 10 of our new total of 11 longs for 1 more flat. Now we have 8 flats, 1 long, and 7 units. Numeric answer: $579 + 238 = 817$.
 - (d) $544 + 962$ – Set out 5 flats, 4 longs, and 4 units. Also set out 9 flats, 6 longs, and 2 units. We have too many flats and longs when we put everything together (14 flats and 10 longs), so trade 10 of the flats for 1 new cube, and all 10 longs for 1 new flat. Now we have 1 cube, 5 flats, no longs, and 6 units. Numeric answer: $544 + 962 = 1506$.
 - (e) $3007 + 928$ – Set out 3 cubes and 7 units. Also set out 9 flats, 2 longs, and 8 units. Combine them. There are too many units, so trade 10 of them for 1 more long. Now we have 3 cubes, 9 flats, 3 longs, and 5 units. Numeric answer: $3007 + 928 = 3935$.
2. Now thoroughly explain how to use base blocks to subtract the following. Be sure to include the block answer and the numeric answer.
 - (a) $1602 - 347$ – Set out 1 cube, 6 flats, and 2 units. We want to take away 3 flats, 4 longs, and 7 units, but we don't have enough longs and we don't have enough units. So trade 1 flat to get 10 new longs, and trade 1 long to get 10 new units. (So now we have 1 cube, 5 flats, 9 longs, and 12 units.) We can remove the 3 flats, 4 longs, and 7 units. We have 1 cube, 2 flats, 5 longs, 5 units. Numeric answer: $1602 - 347 = 1255$
 - (b) $2061 - 382$ – Set out 2 cubes, 6 longs, and 1 unit. We want to take away 3 flats, 8 longs, and 2 units. We don't have enough of anything to do that. So trade 1 cube for 10 more flats, 1 flat for 10 more longs, 1 long for 10 more units. (We have 1 cube, 9 flats, 15 longs, and 11 units.) Now remove the 3 flats, 8 longs, and 2 units. That leaves 1 cube, 6 flats, 7 longs, and 9 units. Numeric answer: $2061 - 382 = 1679$
 - (c) $579 - 238$ – Set out 5 flats, 7 longs, and 9 units. We can take away 2 flats, 3 longs, and 8 units, leaving 3 flats, 4 longs, and 1 unit. Numeric answer: $579 - 238 = 341$
 - (d) $962 - 544$ – Set out 9 flats, 6 longs, and 2 units. We want to take away 5 flats, 4 longs, and 4 units. We don't have enough units to do that, so trade 1 long for 10 new units. Now we can take away the 5 flats, 4 longs, and 4 units. That leaves 4 flats, 1 long, and 8 units. Numeric answer: $962 - 544 = 418$