

Name

Date

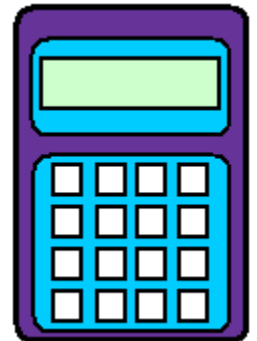


BROKEN CALCULATOR PROBLEM 2

Captain's calculator has broken.

Unfortunately, none of the buttons work apart from the 3, 5, +, - and = button.

Can you help the Captain make all the numbers from 1 to 20 using his broken calculator?



Example: he can make 11 using $3 + 3 + 5 = 11$.

<hr/>	= 1	<hr/>	$3 + 3 + 5$	<hr/>	= 11
<hr/>	= 2	<hr/>		<hr/>	= 12
<hr/>	= 3	<hr/>		<hr/>	= 13
<hr/>	= 4	<hr/>		<hr/>	= 14
<hr/>	= 5	<hr/>		<hr/>	= 15
<hr/>	= 6	<hr/>		<hr/>	= 16
<hr/>	= 7	<hr/>		<hr/>	= 17
<hr/>	= 8	<hr/>		<hr/>	= 18
<hr/>	= 9	<hr/>		<hr/>	= 19
<hr/>	= 10	<hr/>		<hr/>	= 20



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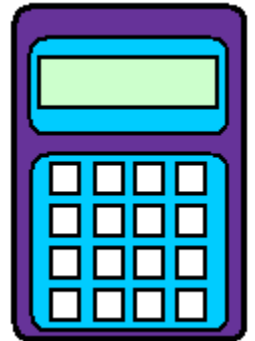


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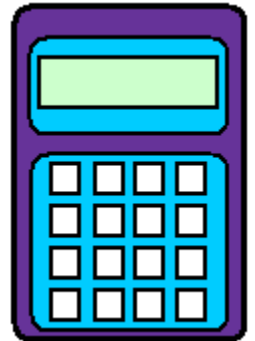


BROKEN CALCULATOR PROBLEM 2 ANSWERS

Captain's calculator has broken.

Unfortunately, none of the buttons work apart from the 3, 5, +, - and = button.

You can make any of the numbers from 1 to 20 in a variety of ways. There is an example of how to make each number below.



One interesting point is that you can make the numbers 11 to 20 simply by adding 5 + 5 to all the answers from 1 to 10.

$$\underline{3 + 3 - 5} = 1$$

$$\underline{5 - 3} = 2$$

$$\underline{3} = 3$$

$$\underline{3 + 3 + 3 - 5} = 4$$

$$\underline{5} = 5$$

$$\underline{3 + 3} = 6$$

$$\underline{5 + 5 - 3} = 7$$

$$\underline{5 + 3} = 8$$

$$\underline{3 + 3 + 3} = 9$$

$$\underline{5 + 5} = 10$$

$$3 + 3 + 5 = 11$$

$$\underline{3 + 3 + 3 + 3} = 12$$

$$\underline{5 + 5 + 3} = 13$$

$$\underline{3 + 3 + 3 + 5} = 14$$

$$\underline{5 + 5 + 5} = 15$$

$$\underline{5 + 5 + 3 + 3} = 16$$

$$\underline{5 + 5 + 5 + 5 - 3} = 17$$

$$\underline{5 + 5 + 5 + 3} = 18$$

$$\underline{5 + 5 + 3 + 3 + 3} = 19$$

$$\underline{5 + 5 + 5 + 5} = 20$$