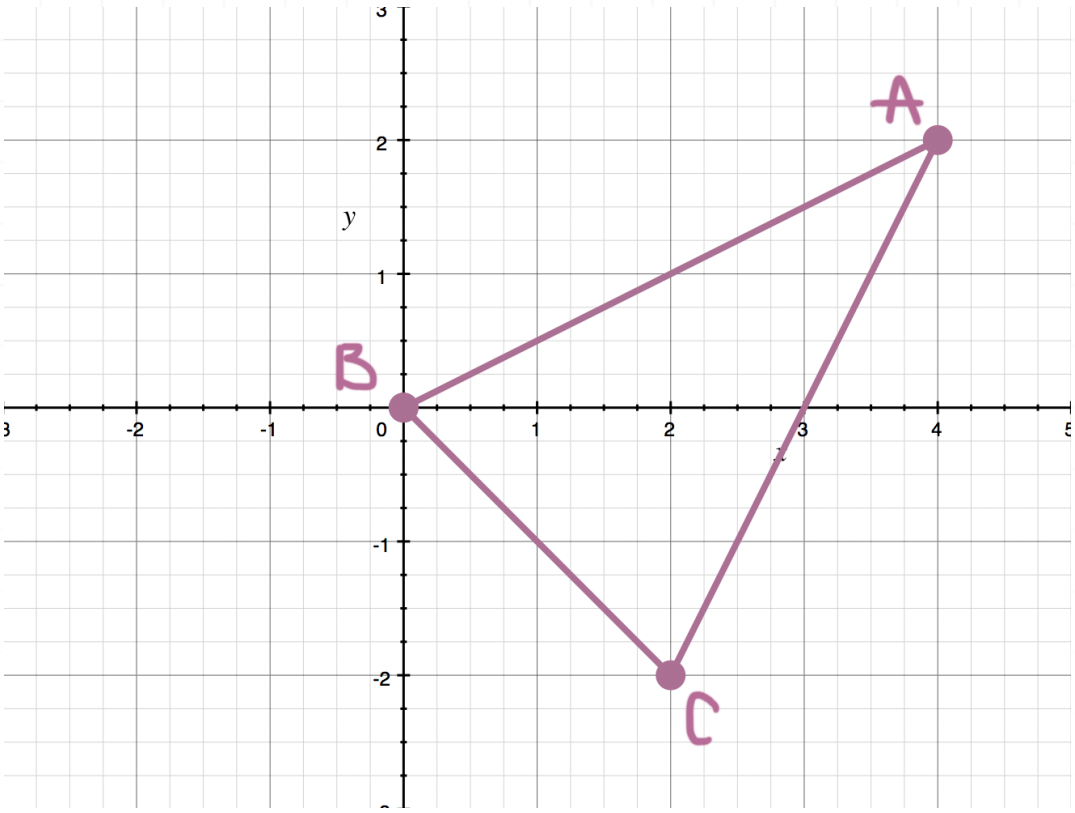
Geometry Workbook

Transformations

krista king MATH

TRANSLATING FIGURES IN COORDINATE SPACE

■ 1. Find the new coordinates of $\triangle ABC$ under a translation of $(x, y) \rightarrow (x + 3, y - 2)$.



■ 2. Is $\triangle EFG$ is a translation of $\triangle HIJ$? Explain why or why not.

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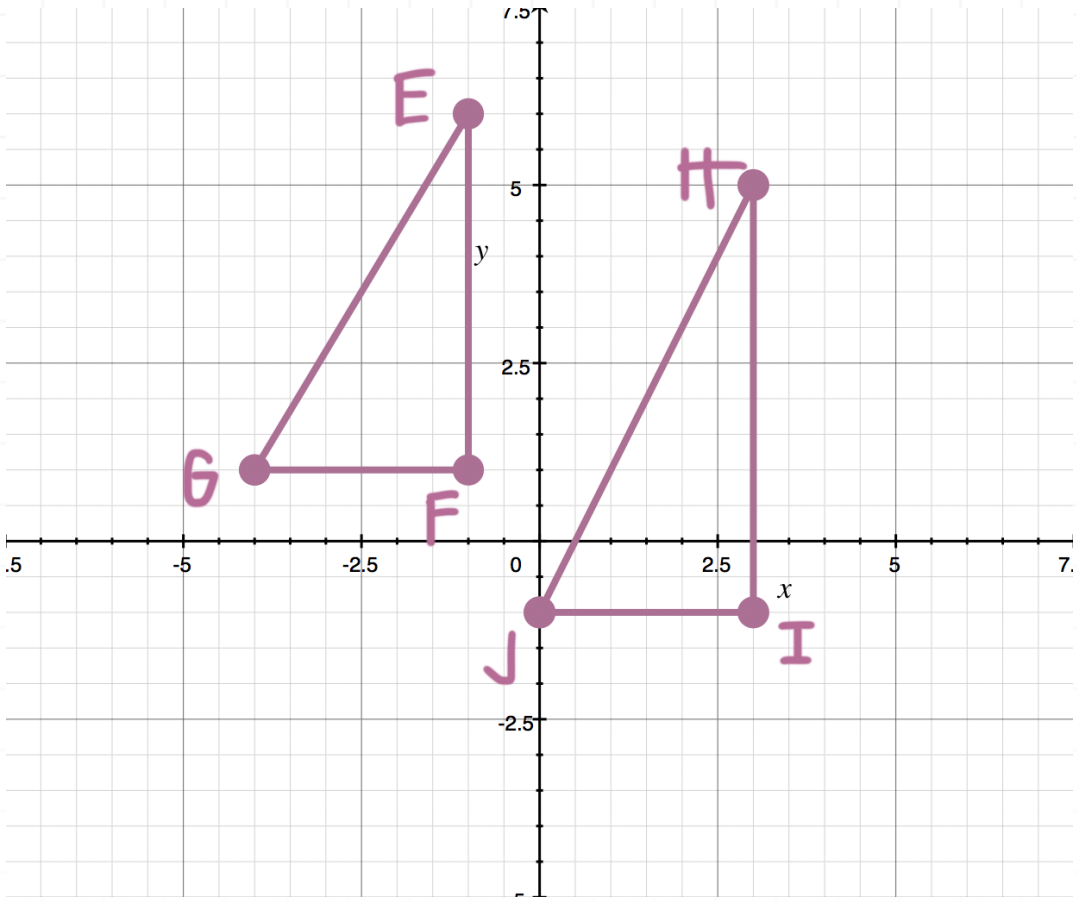

■ 3. $\odot A$ has its center at the origin and radius 3. Find the equation of this circle under a translation of 2 units to the right and 4 units up on the coordinate plane.

■ 4. A rectangle has a diagonal with endpoints at $(5,1)$ and $(14,7)$. Find the area of this rectangle under the translation $(x, y) \rightarrow (x - 5, y - 4)$.

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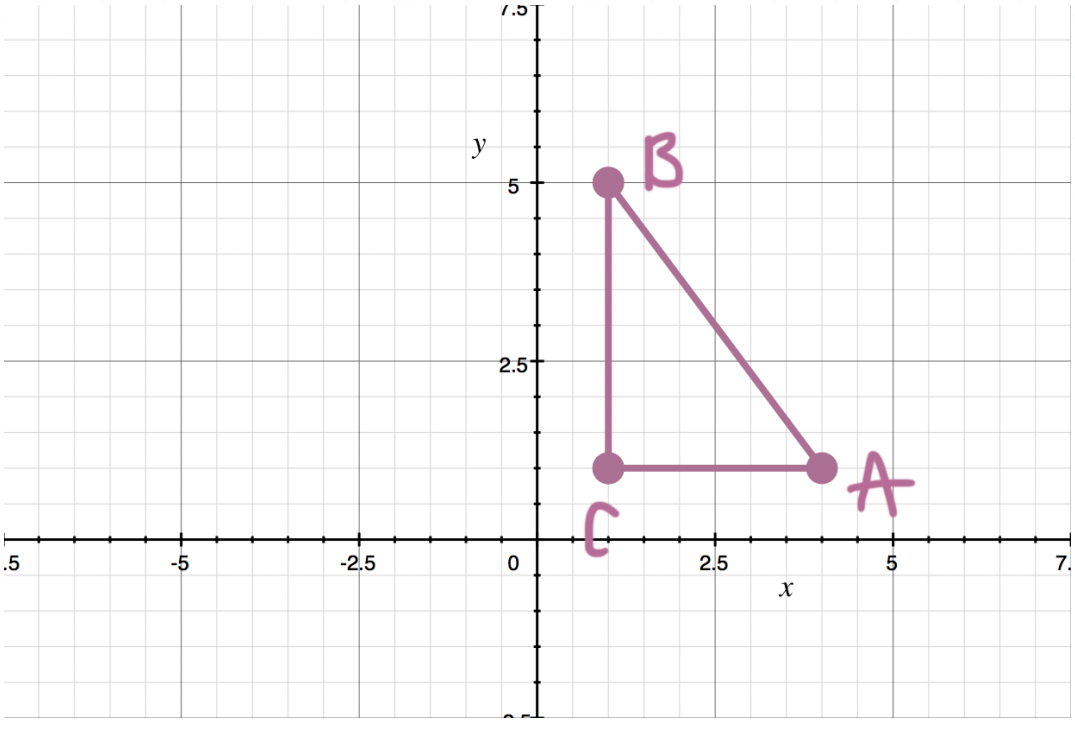
ROTATING FIGURES IN COORDINATE SPACE

■ 1. $X(2,5)$ is rotated clockwise about the origin and its translated coordinate is $X'(-5,2)$. By how many degrees was this point rotated?

■ 2. $B(-3-1)$ is rotated $180°$ counterclockwise about the origin. Find B'.

■ 3. Graph $\triangle ABC$ under a rotation of $90°$ counterclockwise.



■ 4. $G(-4,-6)$ is first translated 5 units to the right and 3 units up on the coordinate plane. Then this new coordinate is rotated $90°$ clockwise about the origin. Find its new coordinate.

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REFLECTING FIGURES IN COORDINATE SPACE

1. Find the coordinates of $A(-4,5)$ under a reflection over the x-axis.

2. Find the coordinates of $J(3,4)$ under a reflection over the y-axis.

3. Find the coordinates of $K(-1,4)$ under a reflection over the line $y = 2$.

4. Find the coordinates of $P(5, -2)$ under a reflection over the line $y = x$.

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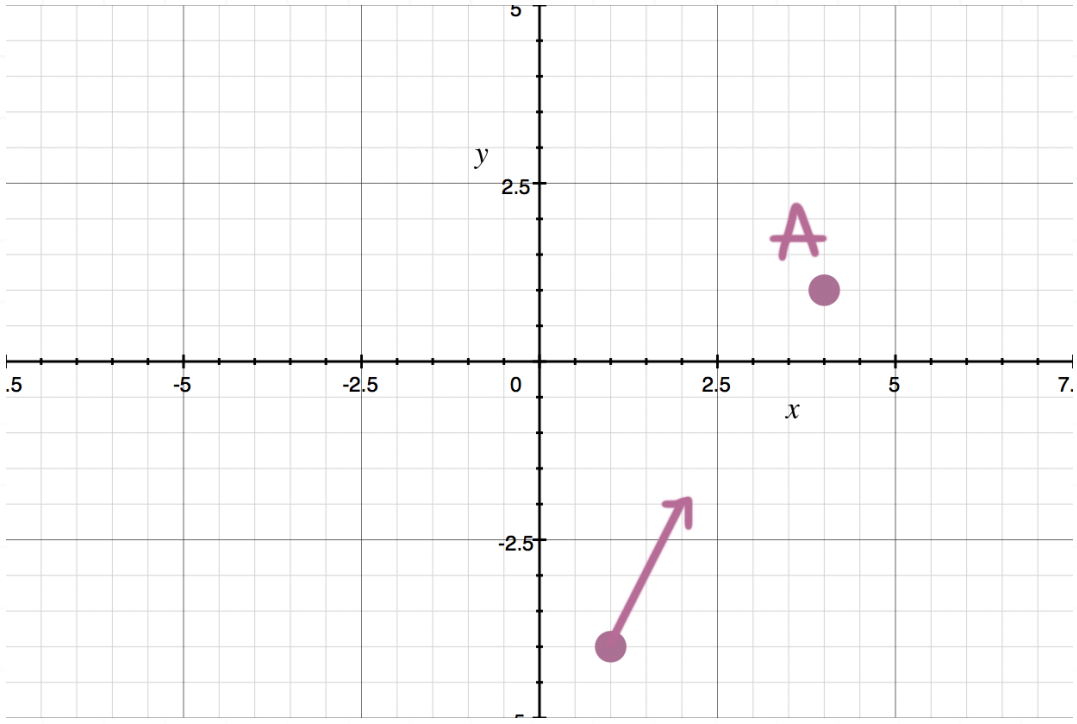
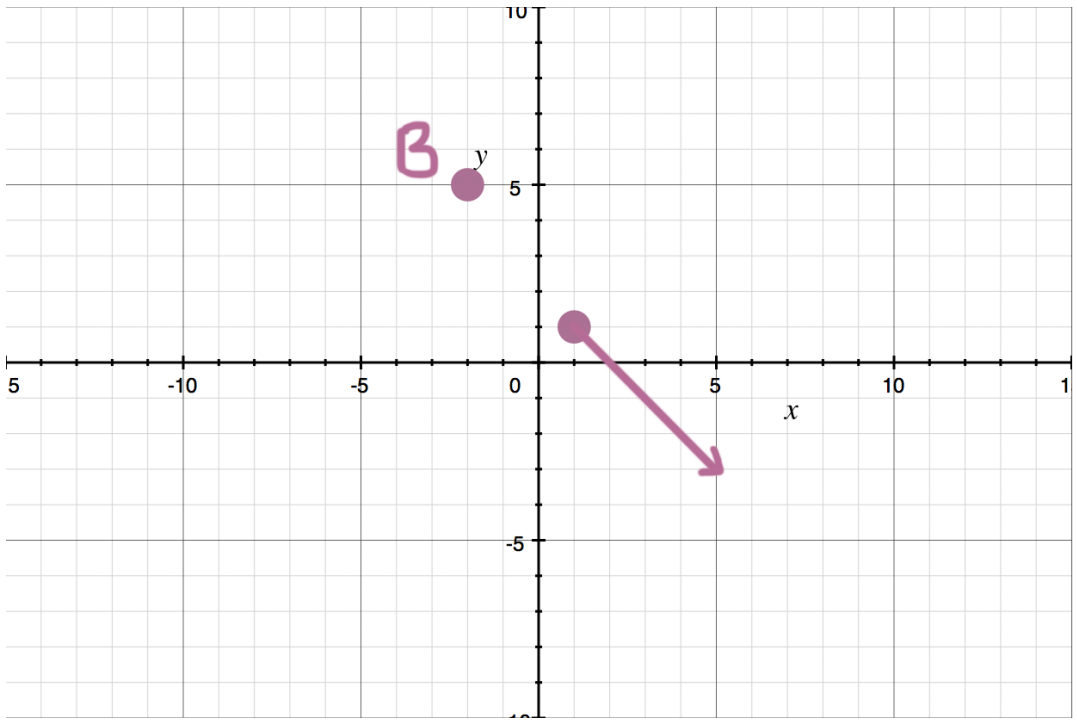
TRANSLATION VECTORS

1. Find A' as directed by the vector shown.



2. Find B' as directed by the vector shown.



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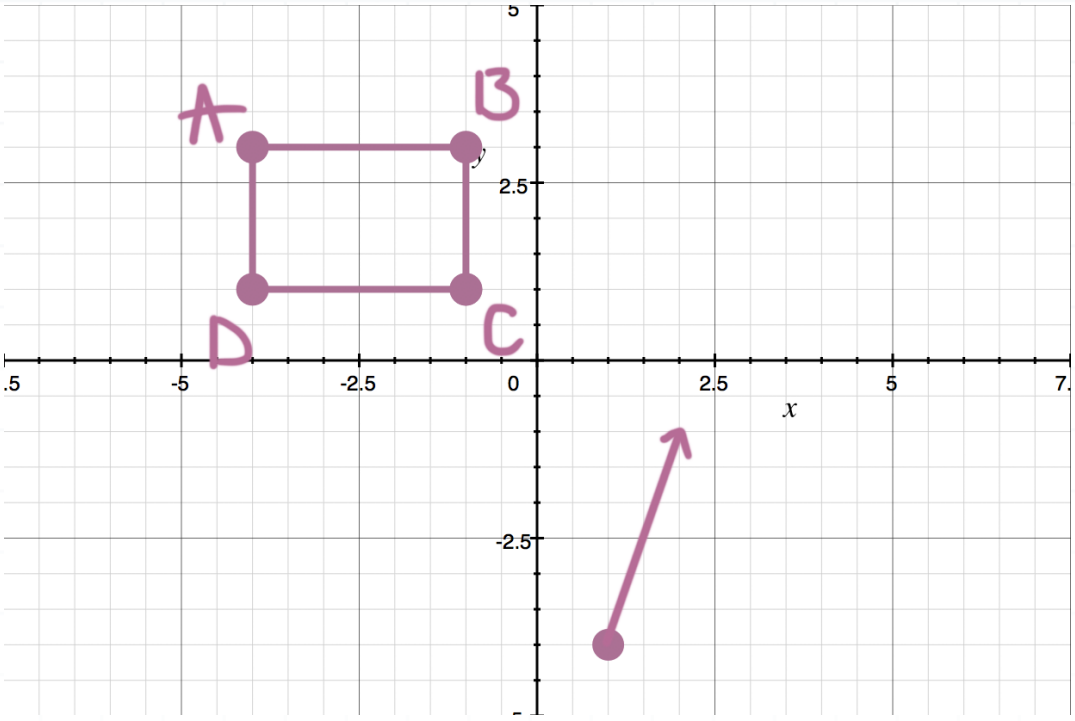
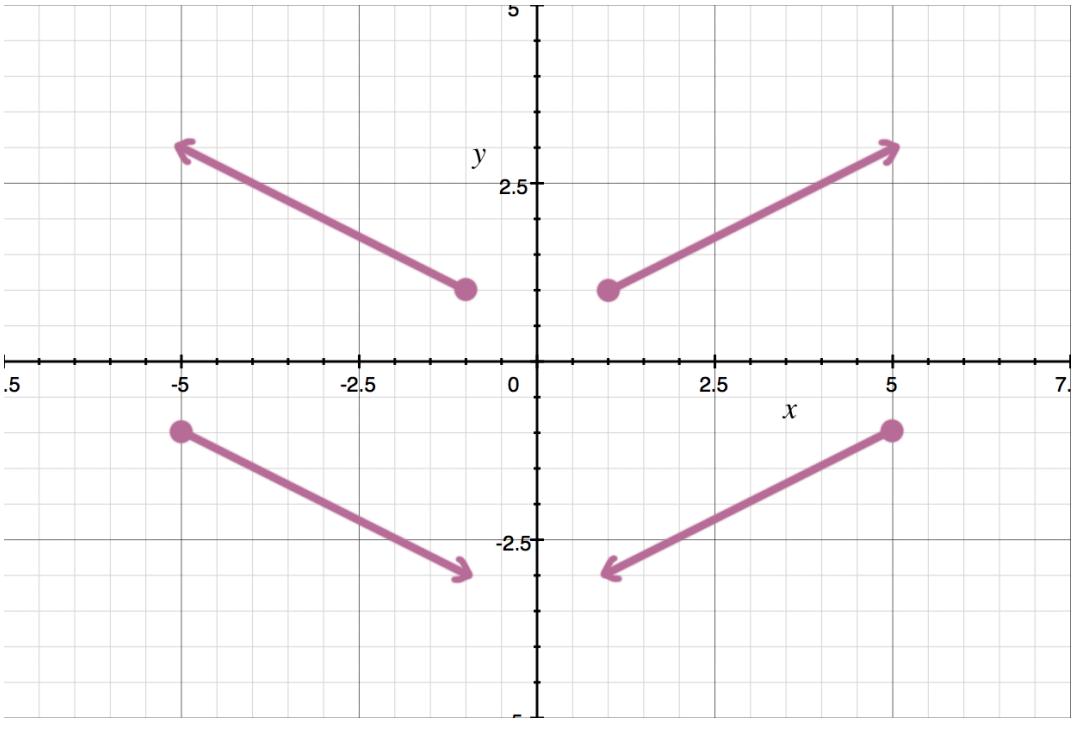
3. Find D' as directed by the vector shown.



4. $M(3,1)$ is rotated $90°$ counterclockwise about the origin. Which translation vector (name the quadrant that contains the vector) would translate M to the correct location on the coordinate plane?



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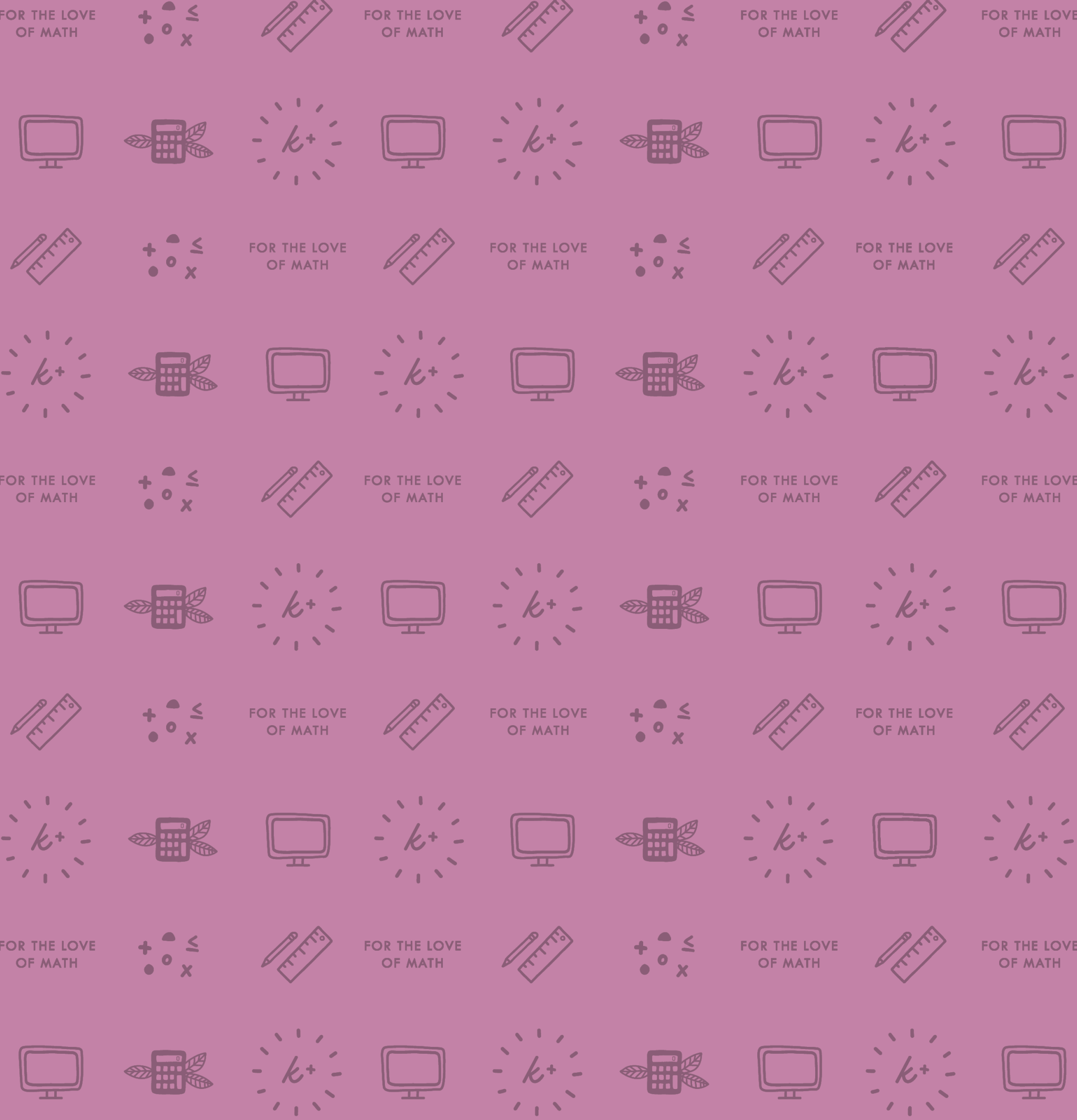

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