

# Connect 4

## Slope Formula Style

### Directions:

Each student will get their own copy. This activity is differentiated between two different levels. Each level has 5 different forms. The easy level has a bitmoji with the word "Math". The hard level has a bitmoji with the word "Algebra".

Students are to solve as many problems as it takes to "Connect 4" using the slope formula  $m = \frac{y_2 - y_1}{x_2 - x_1}$ .

Each page has two possible options to "Connect 4".

Easy Level – Page 2-6

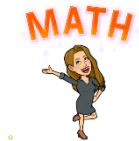
Hard Level – Page 7-11

Answer Keys – Page 13-22 (highlighted and match with bitmojis)

# Let's Play Connect 4!!!

Choose a problem below to calculate **slope**.

Find your answers using the Connect 4 board to the right. Your goal is to color in 4-in-a-row!!! There will be two different Connect 4 paths possible. Once you have successfully completed the Connect 4 Game, you are finished! Be careful and watch your signs, so you do not make any mistakes!



|                  |               |               |                |
|------------------|---------------|---------------|----------------|
| $-\frac{11}{15}$ | $\frac{4}{7}$ | 10            | $\frac{10}{3}$ |
| <i>Und.</i>      | $\frac{9}{7}$ | $\frac{1}{3}$ | $\frac{5}{6}$  |
| $\frac{5}{3}$    | 8             | 0             | 5              |
| $\frac{2}{17}$   | -2            | $\frac{2}{3}$ | -1             |

|                   |                    |                    |                     |
|-------------------|--------------------|--------------------|---------------------|
| (14, 19) (8, 9)   | (-10, -14) (-5, 4) | (12, -4) (15, -1)  | (-4, 3) (11, -8)    |
| (4, 9) (-1, 1)    | (-2, -9) (8, 4)    | (-5, -12) (-18, 1) | (-5, -16) (-7, -20) |
| (-15, 14) (4, -6) | (-8, 9) (-8, 6)    | (-18, -14) (3, 13) | (14, -16) (12, -15) |
| (8, 2) (5, 2)     | (18, -15) (19, 2)  | (5, -11) (-11, 12) | (-9, 15) (-19, 16)  |
| (-12, -4) (16, 3) | (4, 9) (-1, 1)     | (20, -1) (-14, -5) | (9, -12) (-2, -19)  |

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|                |               |               |                  |
|----------------|---------------|---------------|------------------|
| $-\frac{1}{2}$ | <i>Und.</i>   | $-20$         | $\frac{5}{3}$    |
| $\frac{4}{7}$  | <b>8</b>      | $-2$          | $-\frac{20}{19}$ |
| $\frac{10}{3}$ | <b>10</b>     | $-1$          | <b>0</b>         |
| $\frac{1}{4}$  | $\frac{2}{3}$ | $\frac{5}{6}$ | <b>1</b>         |

|                        |                         |                         |                        |
|------------------------|-------------------------|-------------------------|------------------------|
| $(-10, -14)$ $(-5, 4)$ | $(-4, 3)$ $(11, -8)$    | $(-8, 9)$ $(-8, 6)$     | $(-2, -9)$ $(8, 4)$    |
| $(9, -12)$ $(-2, -19)$ | $(14, -16)$ $(12, -15)$ | $(20, 14)$ $(-17, -2)$  | $(4, 9)$ $(-1, 1)$     |
| $(5, -11)$ $(-11, 12)$ | $(8, 2)$ $(5, 2)$       | $(18, -15)$ $(19, 2)$   | $(-15, 14)$ $(4, -6)$  |
| $(-9, 15)$ $(-19, 16)$ | $(-9, 15)$ $(0, 10)$    | $(-11, 9)$ $(-10, -11)$ | $(12, -4)$ $(15, -1)$  |
| $(14, 19)$ $(8, 9)$    | $(-5, -16)$ $(-7, 20)$  | $(-3, -19)$ $(-4, 14)$  | $(-18, -14)$ $(3, 13)$ |

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MATH

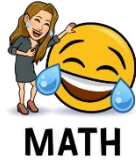


|                |                 |                |                |
|----------------|-----------------|----------------|----------------|
| $-33$          | $\frac{3}{4}$   | $\frac{9}{10}$ | <i>Und.</i>    |
| $\frac{9}{7}$  | $\frac{7}{8}$   | $0$            | $-\frac{2}{7}$ |
| $\frac{7}{11}$ | $-\frac{1}{10}$ | $-1$           | $\frac{1}{5}$  |
| $17$           | $-4$            | $8$            | $4$            |

|                        |                         |                        |                        |
|------------------------|-------------------------|------------------------|------------------------|
| $(20, 14)$ $(-17, -2)$ | $(-3, -19)$ $(-4, 14)$  | $(4, 9)$ $(-1, 1)$     | $(12, -4)$ $(15, -1)$  |
| $(-10, -14)$ $(-5, 4)$ | $(-8, 9)$ $(-8, 6)$     | $(-9, 15)$ $(0, 10)$   | $(-9, 15)$ $(-19, 16)$ |
| $(8, 2)$ $(5, 2)$      | $(5, -11)$ $(-11, 12)$  | $(9, -12)$ $(-2, -19)$ | $(-5, -16)$ $(-7, 20)$ |
| $(14, 19)$ $(8, 9)$    | $(18, -15)$ $(19, 2)$   | $(-2, -9)$ $(8, 4)$    | $(20, -1)$ $(-14, -5)$ |
| $(-18, -14)$ $(3, 13)$ | $(-11, 9)$ $(-10, -11)$ | $(-4, 3)$ $(11, -8)$   | $(-12, -4)$ $(16, 3)$  |

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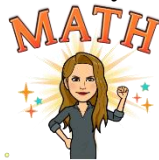


|                |               |                |                  |
|----------------|---------------|----------------|------------------|
| $\frac{3}{4}$  | 0             | $-\frac{1}{3}$ | $-\frac{12}{11}$ |
| 18             | $\frac{9}{7}$ | -2             | 13               |
| -20            | $\frac{5}{3}$ | Und.           | 2                |
| $\frac{5}{18}$ | 17            | -10            | 5                |

|                    |                    |                     |                    |
|--------------------|--------------------|---------------------|--------------------|
| (-3, -19) (-4, 14) | (18, -15) (19, 2)  | (-4, 3) (11, -8)    | (-18, -14) (3, 13) |
| (20, -1) (-14, -5) | (8, 2) (5, 2)      | (18, -15) (19, 2)   | (-9, 15) (-19, 16) |
| (-5, -16) (-7, 20) | (-12, -4) (16, 3)  | (-10, -14) (-5, 4)  | (-8, 9) (-8, 6)    |
| (2, 10) (11, 16)   | (12, -4) (15, -1)  | (-11, 9) (-10, -11) | (-9, 15) (0, 10)   |
| (14, 19) (8, 9)    | (20, 14) (-17, -2) | (-2, -9) (8, 4)     | (9, -12) (-2, -19) |

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|                 |                 |                |                 |
|-----------------|-----------------|----------------|-----------------|
| $\frac{5}{6}$   | $\frac{7}{9}$   | $-\frac{5}{9}$ | $-2$            |
| $-1$            | $10$            | <i>Und.</i>    | $\frac{4}{7}$   |
| $1$             | $-\frac{1}{10}$ | $\frac{2}{3}$  | $\frac{13}{10}$ |
| $-\frac{10}{3}$ | $-\frac{2}{3}$  | $0$            | $8$             |

|                    |                     |                    |                    |
|--------------------|---------------------|--------------------|--------------------|
| (14, 19) (8, 9)    | (-18, -14) (3, 13)  | (9, -12) (-2, -19) | (-9, 15) (-19, 16) |
| (-12, -4) (16, 3)  | (-8, 9) (-8, 6)     | (20, -1) (-14, -5) | (-3, -19) (-4, 14) |
| (-5, -16) (-7, 20) | (5, -11) (-11, 12)  | (12, -4) (15, -1)  | (2, 10) (11, 16)   |
| (-2, -9) (8, 4)    | (-11, 9) (-10, -11) | (20, 14) (-17, -2) | (-9, 15) (0, 10)   |
| (-10, -14) (-5, 4) | (8, 2) (5, 2)       | (-15, 14) (4, -6)  | (18, -15) (19, 2)  |

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ALGEBRA



|                |                |                 |                  |
|----------------|----------------|-----------------|------------------|
| $\frac{3}{5}$  | $\frac{4}{5}$  | <i>Und.</i>     | $-\frac{18}{13}$ |
| $-\frac{3}{8}$ | $-3$           | $-\frac{1}{22}$ | $0$              |
| $4$            | $-\frac{5}{6}$ | $\frac{16}{13}$ | $-\frac{7}{8}$   |
| $-2$           | $-10$          | $\frac{8}{7}$   | $13$             |

|                        |                     |                     |                     |
|------------------------|---------------------|---------------------|---------------------|
| $(-4, 12) (-13, -2)$   | $(-20, -20)(18, 1)$ | $(-8, 13) (11, 18)$ | $(-10, 0) (-9, -3)$ |
| $(13, -6) (20, 16)$    | $(-7, -8) (3, -15)$ | $(-9, 15) (-9, 16)$ | $(10, -4) (14, 7)$  |
| $(-11, -4) (-18, -12)$ | $(7, -18) (1, 6)$   | $(-17, 12) (-2, 3)$ | $(-8, 12) (14, 11)$ |
| $(16, -7) (-2, 6)$     | $(1, 2) (-6, 2)$    | $(0, 4) (-16, 10)$  | $(1, 5) (20, -14)$  |
| $(0, 13) (-2, 9)$      | $(-18, -8)(-5, 8)$  | $(-10, -6) (3, 5)$  | $(-18, 2) (0, -5)$  |

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**ALGEBRA**



|                 |               |                  |                  |
|-----------------|---------------|------------------|------------------|
| 4               | -30           | $-\frac{29}{24}$ | <i>Und.</i>      |
| 3               | $\frac{5}{2}$ | -1               | $-\frac{24}{29}$ |
| $-\frac{1}{2}$  | 0             | $\frac{7}{8}$    | $\frac{3}{23}$   |
| $-\frac{7}{10}$ | 7             | 2                | $-\frac{5}{2}$   |

|                   |                    |                    |                    |
|-------------------|--------------------|--------------------|--------------------|
| (16, -7) (-2, 6)  | (-3, 15) (20, 18)  | (-18, 2) (0, -5)   | (-17, 12) (-2, 3)  |
| (0, 4) (-16, 10)  | (10, -4) (14, 7)   | (1, 2) (-6, 2)     | (-4, 12) (-13, -2) |
| (-8, 13) (11, 18) | (-19, 14) (-15, 4) | (-20, -20) (18, 1) | (-16, 5) (13, -19) |
| (-9, 15) (-9, 16) | (1, 5) (20, -14)   | (-10, -6) (3, 5)   | (7, -18) (1, 6)    |
| (-18, -8) (-5, 8) | (-8, 12) (14, 11)  | (-7, -8) (3, -15)  | (13, -6) (20, 16)  |



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**ALGEBRA**

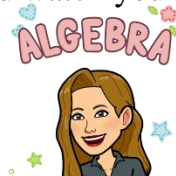


|                |                  |                  |                |
|----------------|------------------|------------------|----------------|
| $-\frac{5}{2}$ | $-\frac{12}{13}$ | 3                | -2             |
| -30            | 30               | $-\frac{17}{13}$ | $-\frac{2}{5}$ |
| -4             | $\frac{5}{6}$    | $\frac{3}{4}$    | $\frac{1}{3}$  |
| <i>Und.</i>    | $-\frac{13}{21}$ | $\frac{16}{13}$  | 0              |

|                   |                    |                      |                    |
|-------------------|--------------------|----------------------|--------------------|
| (10, -4) (14, 7)  | (-18, 2) (0, -5)   | (18, -14) (-3, -1)   | (0, 4) (-16, 10)   |
| (-7, -8) (3, -15) | (-9, 15) (-9, 16)  | (-8, 12) (14, 11)    | (-16, 5) (13, -19) |
| (-10, -6) (3, 5)  | (-17, 12) (-2, 3)  | (1, 2) (-6, 2)       | (-19, 14) (-15, 4) |
| (16, -7) (-2, 6)  | (9, -10) (8, 20)   | (-11, -4) (-18, -12) | (-20, -20) (18, 1) |
| (-18, -8) (-5, 8) | (-4, 12) (-13, -2) | (-10, 0) (-9, -3)    | (7, -18) (1, 6)    |

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|                 |               |                  |                 |
|-----------------|---------------|------------------|-----------------|
| $-\frac{1}{22}$ | $-5$          | $-\frac{2}{3}$   | $-2$            |
| $-\frac{9}{14}$ | <i>Und.</i>   | $-20$            | $\frac{7}{8}$   |
| $0$             | $2$           | $-\frac{24}{29}$ | $-\frac{7}{18}$ |
| $\frac{4}{5}$   | $\frac{5}{2}$ | $\frac{19}{13}$  | $\frac{16}{13}$ |

|                      |                        |                      |                      |
|----------------------|------------------------|----------------------|----------------------|
| $(-10, -6) (3, 5)$   | $(-11, -4) (-18, -12)$ | $(-17, 12) (-2, 3)$  | $(1, 2) (-6, 2)$     |
| $(7, -18) (1, 6)$    | $(1, 5) (20, -14)$     | $(-18, -8) (-5, 8)$  | $(-8, 13) (11, 18)$  |
| $(-18, 2) (0, -5)$   | $(-16, 5) (13, -19)$   | $(16, -7) (-2, 6)$   | $(-7, -8) (3, -15)$  |
| $(-3, 15) (20, 18)$  | $(0, 4) (-16, 10)$     | $(-9, 15) (-9, 16)$  | $(-8, 12) (14, 11)$  |
| $(-4, 12) (-13, -2)$ | $(0, 13) (-2, 9)$      | $(-19, 14) (-15, 4)$ | $(18, -14) (-3, -1)$ |

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ALGEBRA



|                |                |                 |                  |
|----------------|----------------|-----------------|------------------|
| 0              | $-\frac{8}{7}$ | $-\frac{7}{9}$  | 4                |
| <i>Und.</i>    | $\frac{5}{19}$ | $\frac{11}{13}$ | $-\frac{7}{18}$  |
| $\frac{19}{5}$ | $\frac{3}{4}$  | $\frac{22}{7}$  | $-\frac{6}{7}$   |
| $-\frac{2}{3}$ | 30             | 5               | $-\frac{13}{21}$ |

|                      |                    |                   |                    |
|----------------------|--------------------|-------------------|--------------------|
| (-8, 12) (14, 11)    | (0, 13) (-2, 9)    | (7, -18) (1, 6)   | (13, -6) (20, 16)  |
| (-8, 13) (11, 18)    | (-16, 5) (13, -19) | (-18, -8) (-5, 8) | (18, -14) (-3, -1) |
| (-11, -4) (-18, -12) | (1, 2) (-6, 2)     | (-10, -6) (3, 5)  | (1, 5) (20, -14)   |
| (-19, 14) (-15, 4)   | (-17, 12) (-2, 3)  | (-18, 2) (0, -5)  | (9, -10) (8, 20)   |
| (-3, 15) (20, 18)    | (-9, 15) (-9, 16)  | (0, 4) (-16, 10)  | (-7, -8) (3, -15)  |

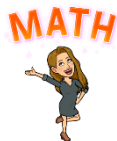
Connect 4

Slope Formula Style

Answer Keys

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|                  |               |               |                |
|------------------|---------------|---------------|----------------|
| $-\frac{11}{15}$ | $\frac{4}{7}$ | 10            | $\frac{10}{3}$ |
| <i>Und.</i>      | $\frac{9}{7}$ | $\frac{1}{3}$ | $\frac{5}{6}$  |
| $\frac{5}{3}$    | 8             | 0             | 5              |
| $\frac{2}{17}$   | -2            | $\frac{2}{3}$ | -1             |

|   |   |  |   |
|---|---|--|---|
| (14, 19) (8, 9)<br>$m = \frac{5}{3}$      | (-10, -14) (-5, 4)<br>$m = \frac{18}{5}$  | (12, -4) (15, -1)<br>$m = 1$               | (-4, 3) (11, -8)<br>$m = -\frac{11}{15}$  |
| (4, 9) (-1, 1)<br>$m = \frac{8}{5}$       | (-2, -9) (8, 4)<br>$m = \frac{13}{10}$    | (-5, -12) (-18, 1)<br>$m = -1$             | (-5, -16) (-7, -20)<br>$m = 2$            |
| (-15, 14) (4, -6)<br>$m = -\frac{20}{19}$ | (-8, 9) (-8, 6)<br>$m = \text{undefined}$ | (-18, -14) (3, 13)<br>$m = \frac{9}{7}$    | (14, -16) (12, -15)<br>$m = -\frac{1}{2}$ |
| (8, 2) (5, 2)<br>$m = 0$                  | (18, -15) (19, 2)<br>$m = 17$             | (5, -11) (-11, 12)<br>$m = -\frac{23}{16}$ | (-9, 15) (-19, 16)<br>$m = -\frac{1}{10}$ |
| (-12, -4) (16, 3)<br>$m = \frac{1}{4}$    | (4, 9) (-1, 1)<br>$m = \frac{8}{5}$       | (20, -1) (-14, -5)<br>$m = \frac{2}{17}$   | (9, -12) (-2, -19)<br>$m = \frac{7}{11}$  |

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|                |               |               |                  |
|----------------|---------------|---------------|------------------|
| $-\frac{1}{2}$ | <i>Und.</i>   | $-20$         | $\frac{5}{3}$    |
| $\frac{4}{7}$  | $8$           | $-2$          | $-\frac{20}{19}$ |
| $\frac{10}{3}$ | $10$          | $-1$          | $0$              |
| $\frac{1}{4}$  | $\frac{2}{3}$ | $\frac{5}{6}$ | $1$              |

|   |   |   |   |
|---|---|---|---|
| $(-10, -14) (-5, 4)$<br>$m = \frac{18}{5}$  | $(-4, 3) (11, -8)$<br>$m = -\frac{11}{15}$  | $(-8, 9) (-8, 6)$<br>$m = \text{undefined}$ | $(-2, -9) (8, 4)$<br>$m = \frac{13}{10}$    |
| $(9, -12) (-2, -19)$<br>$m = \frac{7}{11}$  | $(14, -16) (12, -15)$<br>$m = -\frac{1}{2}$ | $(20, 14) (-17, -2)$<br>$m = \frac{16}{37}$ | $(4, 9) (-1, 1)$<br>$m = \frac{8}{5}$       |
| $(5, -11) (-11, 12)$<br>$m = \frac{23}{16}$ | $(8, 2) (5, 2)$<br>$m = 0$                  | $(18, -15) (19, 2)$<br>$m = 17$             | $(-15, 14) (4, -6)$<br>$m = -\frac{20}{19}$ |
| $(-9, 15) (-19, 16)$<br>$m = -\frac{1}{10}$ | $(-9, 15) (0, 10)$<br>$m = -\frac{5}{9}$    | $(-11, 9) (-10, -11)$<br>$m = -20$          | $(12, -4) (15, -1)$<br>$m = 1$              |
| $(14, 19) (8, 9)$<br>$m = \frac{5}{3}$      | $(-5, -16) (-7, 20)$<br>$m = 2$             | $(-3, -19) (-4, 14)$<br>$m = -33$           | $(-18, -14) (3, 13)$<br>$m = \frac{9}{7}$   |

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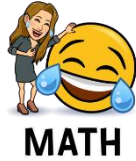


|                |                 |                |                |
|----------------|-----------------|----------------|----------------|
| <b>-33</b>     | $\frac{3}{4}$   | $\frac{9}{10}$ | <b>Und.</b>    |
| $\frac{9}{7}$  | $\frac{7}{8}$   | <b>0</b>       | $-\frac{2}{7}$ |
| $\frac{7}{11}$ | $-\frac{1}{10}$ | -1             | $\frac{1}{5}$  |
| <b>17</b>      | -4              | <b>8</b>       | <b>4</b>       |

|  |  |   |  |
|--|--|---|--|
| (20, 14) (-17, -2)<br><br>$m = \frac{16}{37}$      | <b>(-3, -19) (-4, 14)</b><br><br>$m = -33$           | (4, 9) (-1, 1)<br><br>$m = \frac{8}{5}$             | (12, -4) (15, -1)<br><br>$m = 1$                     |
| (-10, -14) (-5, 4)<br><br>$m = \frac{18}{5}$       | <b>(-8, 9) (-8, 6)</b><br><br>$m = \text{undefined}$ | (-9, 15) (0, 10)<br><br>$m = -\frac{5}{9}$          | <b>(-9, 15) (-19, 16)</b><br><br>$m = -\frac{1}{10}$ |
| <b>(8, 2) (5, 2)</b><br><br>$m = 0$                | (5, -11) (-11, 12)<br><br>$m = \frac{23}{16}$        | <b>(9, -12) (-2, -19)</b><br><br>$m = \frac{7}{11}$ | (-5, -16) (-7, 20)<br><br>$m = 2$                    |
| (14, 19) (8, 9)<br><br>$m = \frac{5}{3}$           | <b>(18, -15) (19, 2)</b><br><br>$m = 17$             | (-2, -9) (8, 4)<br><br>$m = \frac{13}{10}$          | (20, -1) (-14, -5)<br><br>$m = \frac{2}{17}$         |
| <b>(-18, -14) (3, 13)</b><br><br>$m = \frac{9}{7}$ | (-11, 9) (-10, -11)<br><br>$m = -20$                 | (-4, 3) (11, -8)<br><br>$m = -\frac{11}{15}$        | (-12, -4) (16, 3)<br><br>$m = \frac{1}{4}$           |

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Find your answers using the Connect 4 board to the right. Your goal is to color in 4-in-a-row!!! There will be two different Connect 4 paths possible. Once you have successfully completed the Connect 4 Game, you are finished! Be careful and watch your signs, so you do not make any mistakes!



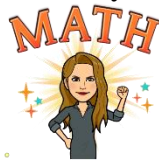
|                |               |                |                  |
|----------------|---------------|----------------|------------------|
| $\frac{3}{4}$  | 0             | $-\frac{1}{3}$ | $-\frac{12}{11}$ |
| 18             | $\frac{9}{7}$ | -2             | 13               |
| -20            | $\frac{5}{3}$ | Und.           | 2                |
| $\frac{5}{18}$ | 17            | -10            | 5                |

|  |   |  |   |
|--|---|--|---|
| (-3, -19) (-4, 14)<br>$m = -33$          | (18, -15) (19, 2)<br>$m = 17$             | (-4, 3) (11, -8)<br>$m = -\frac{11}{15}$ | (-18, -14) (3, 13)<br>$m = \frac{9}{7}$   |
| (20, -1) (-14, -5)<br>$m = \frac{2}{17}$ | (8, 2) (5, 2)<br>$m = 0$                  | (18, -15) (19, 2)<br>$m = 17$            | (-9, 15) (-19, 16)<br>$m = -\frac{1}{10}$ |
| (-5, -16) (-7, 20)<br>$m = 2$            | (-12, -4) (16, 3)<br>$m = \frac{1}{4}$    | (-10, -14) (-5, 4)<br>$m = \frac{18}{5}$ | (-8, 9) (-8, 6)<br>$m = \text{undefined}$ |
| (2, 10) (11, 16)<br>$m = \frac{2}{3}$    | (12, -4) (15, -1)<br>$m = 1$              | (-11, 9) (-10, -11)<br>$m = -20$         | (-9, 15) (0, 10)<br>$m = -\frac{5}{9}$    |
| (14, 19) (8, 9)<br>$m = \frac{5}{3}$     | (20, 14) (-17, -2)<br>$m = \frac{16}{37}$ | (-2, -9) (8, 4)<br>$m = \frac{13}{10}$   | (9, -12) (-2, -19)<br>$m = \frac{7}{11}$  |



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|                 |                 |                |                 |
|-----------------|-----------------|----------------|-----------------|
| $\frac{5}{6}$   | $\frac{7}{9}$   | $-\frac{5}{9}$ | $-2$            |
| $-1$            | $10$            | <i>Und.</i>    | $\frac{4}{7}$   |
| $1$             | $-\frac{1}{10}$ | $\frac{2}{3}$  | $\frac{13}{10}$ |
| $-\frac{10}{3}$ | $-\frac{2}{3}$  | $0$            | $8$             |

|  |   |   |   |
|--|---|---|---|
| $(14, 19) (8, 9)$<br>$m = \frac{5}{3}$     | $(-18, -14) (3, 13)$<br>$m = \frac{9}{7}$   | $(9, -12) (-2, -19)$<br>$m = \frac{7}{11}$  | $(-9, 15) (-19, 16)$<br>$m = -\frac{1}{10}$ |
| $(-12, -4) (16, 3)$<br>$m = \frac{1}{4}$   | $(-8, 9) (-8, 6)$<br>$m = \text{undefined}$ | $(20, -1) (-14, -5)$<br>$m = \frac{2}{17}$  | $(-3, -19) (-4, 14)$<br>$m = -33$           |
| $(-5, -16) (-7, 20)$<br>$m = 2$            | $(5, -11) (-11, 12)$<br>$m = \frac{23}{16}$ | $(12, -4) (15, -1)$<br>$m = 1$              | $(2, 10) (11, 16)$<br>$m = \frac{2}{3}$     |
| $(-2, -9) (8, 4)$<br>$m = \frac{13}{10}$   | $(-11, 9) (-10, -11)$<br>$m = -20$          | $(20, 14) (-17, -2)$<br>$m = \frac{16}{37}$ | $(-9, 15) (0, 10)$<br>$m = -\frac{5}{9}$    |
| $(-10, -14) (-5, 4)$<br>$m = \frac{18}{5}$ | $(8, 2) (5, 2)$<br>$m = 0$                  | $(-15, 14) (4, -6)$<br>$m = -\frac{20}{19}$ | $(18, -15) (19, 2)$<br>$m = 17$             |

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ALGEBRA



|                |                |                 |                  |
|----------------|----------------|-----------------|------------------|
| $\frac{3}{5}$  | $\frac{4}{5}$  | <b>Und.</b>     | $-\frac{18}{13}$ |
| $-\frac{3}{8}$ | $-3$           | $-\frac{1}{22}$ | <b>0</b>         |
| <b>4</b>       | $-\frac{5}{6}$ | $\frac{16}{13}$ | $-\frac{7}{8}$   |
| $-2$           | $-10$          | $\frac{8}{7}$   | <b>13</b>        |

|   |  |   |  |
|---|--|---|--|
| $(-4, 12) (-13, -2)$<br>$m = \frac{14}{9}$  | $(-20, -20)(18, 1)$<br>$m = \frac{21}{38}$ | $(-8, 13) (11, 18)$<br>$m = \frac{5}{19}$     | $(-10, 0) (-9, -3)$<br>$m = -3$            |
| $(13, -6) (20, 16)$<br>$m = \frac{22}{7}$   | $(-7, -8) (3, -15)$<br>$m = -\frac{7}{10}$ | $(-9, 15) (-9, 16)$<br>$m = \text{undefined}$ | $(10, -4) (14, 7)$<br>$m = \frac{11}{4}$   |
| $(-11, -4) (-18, -12)$<br>$m = \frac{8}{7}$ | $(7, -18) (1, 6)$<br>$m = -4$              | $(-17, 12) (-2, 3)$<br>$m = -\frac{3}{5}$     | $(-8, 12) (14, 11)$<br>$m = -\frac{1}{22}$ |
| $(16, -7) (-2, 6)$<br>$m = -\frac{13}{18}$  | $(1, 2) (-6, 2)$<br>$m = 0$                | $(0, 4) (-16, 10)$<br>$m = -\frac{3}{8}$      | $(1, 5) (20, -14)$<br>$m = -1$             |
| $(0, 13) (-2, 9)$<br>$m = 2$                | $(-18, -8)(-5, 8)$<br>$m = \frac{16}{13}$  | $(-10, -6) (3, 5)$<br>$m = \frac{11}{13}$     | $(-18, 2) (0, -5)$<br>$m = -\frac{7}{18}$  |

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|                 |               |                  |                  |
|-----------------|---------------|------------------|------------------|
| 4               | -30           | $-\frac{29}{24}$ | <i>Und.</i>      |
| 3               | $\frac{5}{2}$ | -1               | $-\frac{24}{29}$ |
| $-\frac{1}{2}$  | 0             | $\frac{7}{8}$    | $\frac{3}{23}$   |
| $-\frac{7}{10}$ | 7             | 2                | $-\frac{5}{2}$   |

|   |  |   |  |
|---|--|---|--|
| (16, -7) (-2, 6)<br>$m = -\frac{13}{18}$    | (-3, 15) (20, 18)<br>$m = \frac{3}{23}$  | (-18, 2) (0, -5)<br>$m = -\frac{7}{18}$   | (-17, 12) (-2, 3)<br>$m = -\frac{3}{5}$    |
| (0, 4) (-16, 10)<br>$m = -\frac{3}{8}$      | (10, -4) (14, 7)<br>$m = \frac{11}{4}$   | (1, 2) (-6, 2)<br>$m = 0$                 | (-4, 12) (-13, -2)<br>$m = \frac{14}{9}$   |
| (-8, 13) (11, 18)<br>$m = \frac{5}{19}$     | (-19, 14) (-15, 4)<br>$m = -\frac{5}{2}$ | (-20, -20) (18, 1)<br>$m = \frac{21}{38}$ | (-16, 5) (13, -19)<br>$m = -\frac{24}{29}$ |
| (-9, 15) (-9, 16)<br>$m = \text{undefined}$ | (1, 5) (20, -14)<br>$m = -1$             | (-10, -6) (3, 5)<br>$m = \frac{11}{13}$   | (7, -18) (1, 6)<br>$m = -4$                |
| (-18, -8) (-5, 8)<br>$m = \frac{16}{13}$    | (-8, 12) (14, 11)<br>$m = -\frac{1}{22}$ | (-7, -8) (3, -15)<br>$m = -\frac{7}{10}$  | (13, -6) (20, 16)<br>$m = \frac{22}{7}$    |

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|                |                  |                  |                |
|----------------|------------------|------------------|----------------|
| $-\frac{5}{2}$ | $-\frac{12}{13}$ | 3                | -2             |
| -30            | 30               | $-\frac{17}{13}$ | $-\frac{2}{5}$ |
| -4             | $\frac{5}{6}$    | $\frac{3}{4}$    | $\frac{1}{3}$  |
| Und.           | $-\frac{13}{21}$ | $\frac{16}{13}$  | 0              |

|  |   |  |  |
|--|---|--|--|
| (10, -4) (14, 7)<br>$m = \frac{11}{4}$   | (-18, 2) (0, -5)<br>$m = -\frac{7}{18}$     | (18, -14) (-3, -1)<br>$m = -\frac{13}{21}$ | (0, 4) (-16, 10)<br>$m = -\frac{3}{8}$     |
| (-7, -8) (3, -15)<br>$m = -\frac{7}{10}$ | (-9, 15) (-9, 16)<br>$m = \text{undefined}$ | (-8, 12) (14, 11)<br>$m = -\frac{1}{22}$   | (-16, 5) (13, -19)<br>$m = -\frac{24}{29}$ |
| (-10, -6) (3, 5)<br>$m = \frac{11}{13}$  | (-17, 12) (-2, 3)<br>$m = -\frac{3}{5}$     | (1, 2) (-6, 2)<br>$m = 0$                  | (-19, 14) (-15, 4)<br>$m = -\frac{5}{2}$   |
| (16, -7) (-2, 6)<br>$m = -\frac{13}{18}$ | (9, -10) (8, 20)<br>$m = -30$               | (-11, -4) (-18, -12)<br>$m = \frac{8}{7}$  | (-20, -20) (18, 1)<br>$m = \frac{21}{38}$  |
| (-18, -8) (-5, 8)<br>$m = \frac{16}{13}$ | (-4, 12) (-13, -2)<br>$m = \frac{14}{9}$    | (-10, 0) (-9, -3)<br>$m = -3$              | (7, -18) (1, 6)<br>$m = -4$                |

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|                 |               |                  |                 |
|-----------------|---------------|------------------|-----------------|
| $-\frac{1}{22}$ | $-5$          | $-\frac{2}{3}$   | $-2$            |
| $-\frac{9}{14}$ | <b>Und.</b>   | $-20$            | $\frac{7}{8}$   |
| <b>0</b>        | <b>2</b>      | $-\frac{24}{29}$ | $-\frac{7}{18}$ |
| $\frac{4}{5}$   | $\frac{5}{2}$ | $\frac{19}{13}$  | $\frac{16}{13}$ |

|  |  |   |  |
|--|--|---|--|
| $(-10, -6) (3, 5)$<br>$m = \frac{11}{13}$  | $(-11, -4) (-18, -12)$<br>$m = \frac{8}{7}$  | $(-17, 12) (-2, 3)$<br>$m = -\frac{3}{5}$     | $(1, 2) (-6, 2)$<br>$m = 0$                  |
| $(7, -18) (1, 6)$<br>$m = -4$              | $(1, 5) (20, -14)$<br>$m = -1$               | $(-18, -8) (-5, 8)$<br>$m = \frac{16}{13}$    | $(-8, 13) (11, 18)$<br>$m = \frac{5}{19}$    |
| $(-18, 2) (0, -5)$<br>$m = -\frac{7}{18}$  | $(-16, 5) (13, -19)$<br>$m = -\frac{24}{29}$ | $(16, -7) (-2, 6)$<br>$m = -\frac{13}{18}$    | $(-7, -8) (3, -15)$<br>$m = -\frac{7}{10}$   |
| $(-3, 15) (20, 18)$<br>$m = \frac{3}{23}$  | $(0, 4) (-16, 10)$<br>$m = -\frac{3}{8}$     | $(-9, 15) (-9, 16)$<br>$m = \text{undefined}$ | $(-8, 12) (14, 11)$<br>$m = -\frac{1}{22}$   |
| $(-4, 12) (-13, -2)$<br>$m = \frac{14}{9}$ | $(0, 13) (-2, 9)$<br>$m = 2$                 | $(-19, 14) (-15, 4)$<br>$m = -\frac{5}{2}$    | $(18, -14) (-3, -1)$<br>$m = -\frac{13}{21}$ |

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|                |                |                 |                  |
|----------------|----------------|-----------------|------------------|
| 0              | $-\frac{8}{7}$ | $-\frac{7}{9}$  | 4                |
| Und.           | $\frac{5}{19}$ | $\frac{11}{13}$ | $-\frac{7}{18}$  |
| $\frac{19}{5}$ | $\frac{3}{4}$  | $\frac{22}{7}$  | $-\frac{6}{7}$   |
| $-\frac{2}{3}$ | 30             | 5               | $-\frac{13}{21}$ |

|   |   |  |  |
|---|---|--|--|
| $(-8, 12) (14, 11)$<br>$m = -\frac{1}{22}$  | $(0, 13) (-2, 9)$<br>$m = 2$                  | $(7, -18) (1, 6)$<br>$m = -4$              | $(13, -6) (20, 16)$<br>$m = \frac{22}{7}$    |
| $(-8, 13) (11, 18)$<br>$m = \frac{5}{19}$   | $(-16, 5) (13, -19)$<br>$m = -\frac{24}{29}$  | $(-18, -8) (-5, 8)$<br>$m = \frac{16}{13}$ | $(18, -14) (-3, -1)$<br>$m = -\frac{13}{21}$ |
| $(-11, -4) (-18, -12)$<br>$m = \frac{8}{7}$ | $(1, 2) (-6, 2)$<br>$m = 0$                   | $(-10, -6) (3, 5)$<br>$m = \frac{11}{13}$  | $(1, 5) (20, -14)$<br>$m = -1$               |
| $(-19, 14) (-15, 4)$<br>$m = -\frac{5}{2}$  | $(-17, 12) (-2, 3)$<br>$m = -\frac{3}{5}$     | $(-18, 2) (0, -5)$<br>$m = -\frac{7}{18}$  | $(9, -10) (8, 20)$<br>$m = -30$              |
| $(-3, 15) (20, 18)$<br>$m = \frac{3}{23}$   | $(-9, 15) (-9, 16)$<br>$m = \text{undefined}$ | $(0, 4) (-16, 10)$<br>$m = -\frac{3}{8}$   | $(-7, -8) (3, -15)$<br>$m = -\frac{7}{10}$   |