

## Equations of Graphs Pairs Game

Give students the 12 cards. There is a basic version with equations all with  $y$  as the subject, and a hard one.

Students are to put them into pairs of equations that match in some way.

Once they are matched up they get a score for their matching:

- 5 points for a pair of perpendicular equations
- 3 points for a pair of parallel equations
- 2 points for a pair of equations with the same  $y$ -intercept
- 1 point for a pair that go in the same direction

Total up the points and declare a winner!

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### Answers

5 points:

- $y = x + 5$ ,  $y = 2 - x$
- $y = 2x - 2$ ,  $y = 6 - x/2$
- $y = 5x + 1$ ,  $y = -0.2x + 3$
- $y = 0.1(x + 60)$ ,  $y = -10(x + 0.2)$
- $y = 0.1x + 4$ ,  $y = -10(x + 0.2)$

4 points:

- $y = 6x + 2$ ,  $y = 6x + 5$
- $y = 0.1x + 4$ ,  $y = 0.1(x + 60)$

3 points:

- $y = 6x + 2$ ,  $y = 2 - x$
- $y = 6x + 5$ ,  $y = x + 5$
- $y = 2x - 2$ ,  $y = -10(x + 0.2)$
- Any 2 of:  $y = 0.1(x + 60)$ ,  $y = 6 - x/2$ ,  $y = 3(x + 2)$

1 point:

- Any 2 of:  $y = x + 5$ ,  $y = 2x - 2$ ,  $y = 0.1(x + 60)$ ,  $y = 0.1x + 4$ ,  $y = 5x + 1$ ,  $y = 6x + 2$
- Any 2 of:  $y = -10(x + 0.2)$ ,  $y = 6 - x/2$ ,  $y = 2 - x$ ,  $y = 3(x + 2)$ ,  $y = -0.2x + 3$

For the harder game:

5 points:

- $y - x = 5$ ,  $y + x = 2$
- $y + 2 = 2x$ ,  $2y + x = 12$
- $y = 5x + 1$ ,  $15 - 5y = x$
- $10y = x + 60$ ,  $y = -10(x + 0.2)$
- $20y - 2x = 80$ ,  $y = -10(x + 0.2)$

4 points:

- $y/2 - 1 = 3x$ ,  $y = 6x + 5$
- $20y - 2x = 80$ ,  $10y = x + 60$

3 points:

- $y/2 - 1 = 3x$ ,  $y + x = 2$
- $y = 6x + 5$ ,  $y - x = 5$
- $y + 2 = 2x$ ,  $y = -10(x + 0.2)$
- Any 2 of:  $10y = x + 60$ ,  $2y + x = 12$ ,  $y = 3(x + 2)$

1 point:

- Any 2 of:  $y - x = 5$ ,  $y + 2 = 2x$ ,  $10y = x + 60$ ,  $20y - 2x = 80$ ,  $y = 5x + 1$ ,  $y/2 - 1 = 3x$
- Any 2 of:  $y = -10(x + 0.2)$ ,  $2y + x = 12$ ,  $y + x = 2$ ,  $y = 3(x + 2)$ ,  $15 - 5y = x$