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| **Fill in the Blanks** | **Dividing a Vector in a Ratio** |

Point $X$ divides the vector $\vec{AB}$ in the ratio given to create vectors $\vec{AX}$ and $\vec{XB}$.

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| --- | --- | --- | --- |
| $$\vec{AB}$$ | **Ratio** $AX : XB$ | $$\vec{AX}$$ | $$\vec{XB}$$ |
| $$3a$$ | $$1 : 2$$ | $$a$$ | $$2a$$ |
| $$3a+3b$$ | $$2 : 1$$ | $$2a+2b$$ |  |
| $$4a-4b$$ | $$3 : 1$$ |  |  |
| $$5a+10b$$ | $$3 : 2$$ |  |  |
| $$10a-15b$$ | $$1 : 4$$ |  |  |
| $$a$$ | $$2 : 1$$ | $$\frac{2}{3}a$$ |  |
| $$a+b$$ | $$1 : 2$$ |  | $$\frac{2}{3}a+\frac{2}{3}b$$ |
| $$a-b$$ | $$3 : 1$$ |  |  |
| $$2a+b$$ | $$4 : 1$$ |  |  |
| $$a-4b$$ | $$3 : 2$$ |  |  |
|  | $$1 : 3$$ | $$\frac{1}{4}a-\frac{1}{4}b$$ |  |
| $$2a-3b$$ |  |  | $$\frac{4}{3}a-2b$$ |
|  |  | $$\frac{6}{5}a+\frac{3}{10}b$$ | $$\frac{4}{5}a+\frac{1}{5}b$$ |