### Lesson 17 Practice Problems

1. The 3 lines $x=3,y−2.5=-\frac{1}{5}\left(x−0.5\right),$ and $y−2.5=x−3.5$ intersect at point $P$. Find the coordinates of $P$. Verify algebraically that the lines all intersect at $P$.
2. Triangle $ABC$ has vertices at $\left(0,0\right),\left(5,5\right),$ and $\left(10,1\right)$. Kiran calculates the point of intersection of the medians using the following steps:
	1. Draw the triangle.
	2. Calculate the midpoint of each side.
	3. Draw the medians.
	4. Write an equation for 2 of the medians.
	5. Solve the system of equations.
* Use Kiran’s method to calculate the point of intersection of the medians.
* (From Unit 6, Lesson 16.)
1. Triangle $ABC$ and its medians are shown. Write an equation for median $AE$.
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* (From Unit 6, Lesson 16.)
1. Given $A=\left(1,2\right)$ and $B=\left(7,14\right)$, find the point that partitions segment $AB$ in a $2:1$ ratio.
* (From Unit 6, Lesson 15.)
1. A quadrilateral has vertices $A=\left(0,0\right),B=\left(4,6\right),C=\left(0,12\right),$ and $D=\left(-4,6\right)$. Mai thinks the quadrilateral is a rhombus and Elena thinks the quadrilateral is a square. Do you agree with either of them? Show or explain your reasoning.
* (From Unit 6, Lesson 14.)
1. The image shows a graph of the parabola with focus $\left(-3,-2\right)$ and directrix $y=2$, and the line given by $y=-3$. Find and verify the points where the parabola and the line intersect.
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* (From Unit 6, Lesson 13.)
1. For each equation, is the graph of the equation parallel to the line shown, perpendicular to the line shown, or neither?
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	1. $y=0.25x$
	2. $y=2x−4$
	3. $y−2=-4\left(x−3\right)$
	4. $2y+8x=7$
	5. $x−4y=3$
* (From Unit 6, Lesson 12.)
1. Write 2 equivalent equations for a line with $x$-intercept $\left(3,0\right)$ and $y$-intercept $\left(0,2\right)$.
* (From Unit 6, Lesson 9.)
1. Parabola A and parabola B both have the line $y=-2$ as the directrix. Parabola A has its focus at $\left(3,4\right)$ and parabola B has its focus at $\left(5,0\right)$. Select **all** true statements.
	1. Parabola A is wider than parabola B.
	2. Parabola B is wider than parabola A.
	3. The parabolas have the same line of symmetry.
	4. The line of symmetry of parabola A is to the right of that of parabola B.
	5. The line of symmetry of parabola B is to the right of that of parabola A.
* (From Unit 6, Lesson 7.)



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