<table>
<tr><td>#</td><td>Solution</td></tr>
<tr><td>1</td><td>The graph $(x-4)^2+2$ would have a vertex of (4,2), then we could draw the rest of the quadratic going up</td></tr>
<tr><td>2</td><td>We can multiply (2x-3)(5x+6) using FOIL, the box method of the distributive property. When you multiply it out and combine all like terms your final answer is $10x^2-3x-18$</td></tr>
<tr><td>3</td><td>
<table>
<tr><td>yes</td><td>No</td></tr>
<tr><td></td><td>X (when multiplied out simplifies to $x^3+24x^2+192x+512$)</td></tr>
<tr><td></td><td>X (when multiplied out simplifies to x^3-8)</td></tr>
<tr><td>X (yes when multiplied out they equal the same)</td><td></td></tr>
</table>
</td></tr>
<tr><td>4</td><td>Two numbers whose product is irrational is: $(-5)(\sqrt{8})$</td></tr>
<tr><td>5</td><td>To solve $18n^2-50=0$ you could solve this using the quadratic formula, or factoring. To factor, divide out GCF of 2, then use difference of squares, then zero product property

$18n^2-50=0$
$2(9n^2-25)=0$
$2(3n-5)(3n+5)=0$
$2(3n-5)=0$ $3n+5=0$
$6n-10=0$ $3n=-5$
$6n=10$ $n=-5/3$
$n=10/6$ or $5/3$ and $n=-5/3$</td></tr>
<tr><td>6</td><td>$f(x)=1/2x+6$
$g(x)=-2x-4$

$f(x)-g(x)=0$
$(1/2x+6)-(-2x-4)=0$
$½x+6+2x+4=0$
$2.5x+10=0$
$2.5x=-10$
$X=-4$</td></tr>
<tr><td>7</td><td>A.5
B.122</td></tr>
</table>

	C.6 D.$\sqrt{98}$ or about 9.89
8	Use pythagorean theorem to solve for side AC AC = 9
9	$\sqrt{(6-2)^2+(4-2)^2}$ $\sqrt{(4)^2 + (2)^2}$ $\sqrt{16+4}$ $d=\sqrt{20}$
10	$\sqrt{(2-5)^2 + (1-16)^2}$ $\sqrt{(-3)^2 + (-15)^2}$ $\sqrt{ 9 + 225}$ $D = \sqrt{234}$
11	$\sqrt{(3.5- -3)^2 + (-4.5 - 1.5)^2}$ $\sqrt{ (6.5)^2 + (-6)^2}$ $\sqrt{42.25 + 36}$ $D = \sqrt{78.25}$
12	$\sqrt{(P-J)^2 +(Q-K)^2}$ $D = \sqrt{P^2 - 2JP +J^2 + Q^2 - 2KQ + K^2}$
13	a. $((17 + 2w)(13+2w)) - ((17)(13)) = 396$ b. $4w^2+ 34w + 26w + 221 - 221 = 396$ $4w^2 + 60w - 396 =0$ (solve the quadratic here) W = 4.96 and -19.96 W = 4.96 **note you can use the quadratic formula, factoring, or desmos to find the positive solution, the negative one will not be a correct solution because you can not have a negative width value
14	D; when you subtract xy from both sides you are left with 7x = 21, making x = 3. If you plug that in, you have 21 + 3y = 21 + 3y. So any value of y can work, but the value of x must be 3.
15	Jim paints 1/12 of the house per hour, and Alex paints ⅛ of the house per hour. We get the equation 1/12 + ⅛ = 1/x. The LCD is 24x, so we multiply, making the equation 2x + 3x = 24. 5x = 24, and **x = 4.8**.
16	I would choose Airline P because all of the data points are closer to the desired median, zero. There are also fewer outliers (chance of very early or very late flight).
17	The two reflections are interchangeable as the first step, but the transformation must

<table>
<tr><td></td><td>be done last. If you do the transformation first, you are changing the relative position (to the origin) of the triangle.</td></tr>
<tr><td>18</td><td>Starting at n = 0, the recursive formula creates the sequence: -1, -3, -9, -27, …
Letter B correctly models that sequence</td></tr>
<tr><td>19</td><td>Estimating the number of vehicles would require the reporter to know the average length of the vehicle, the number of lanes on the highway, the average distance between vehicles, and the distance from the beginning to the end of the traffic jam.</td></tr>
<tr><td>20</td><td>(x + 1)(x + 3)</td></tr>
<tr><td>21</td><td>$5(x^2 + 5)$</td></tr>
<tr><td>22</td><td>$6x^2 + 11x - 10$, a*c = -60
<table><tr><td></td><td>3x</td><td>-2</td></tr><tr><td>2x</td><td>$6x^2$</td><td>-4x</td></tr><tr><td>5</td><td>15x</td><td>-10</td></tr></table>
(2x + 5)(3x - 2)</td></tr>
<tr><td>23</td><td>$9x^2 + 6x - 24$, a*c = -216
<table><tr><td></td><td>3x</td><td>-4</td></tr><tr><td>3x</td><td>$9x^2$</td><td>-12x</td></tr><tr><td>6</td><td>+18x</td><td>-24</td></tr></table>
(3x - 4)(3x + 6)</td></tr>
<tr><td>24</td><td>(x - 6)(x + 2)</td></tr>
<tr><td>25</td><td>$-2(4x^2 - 25)$</td></tr>
<tr><td>26</td><td>-4x(3x + 1)</td></tr>
<tr><td>27</td><td>(x + 5)(x - 6)</td></tr>
<tr><td>28</td><td>(x + 9)(x - 2)</td></tr>
<tr><td>29</td><td>$X^2 - 10x + 9 = 0$
(x - 1)(x - 9) = 0
X = 1, 9</td></tr>
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<tr><td>30</td><td>$6x^2 - 15x = 0$
$3x(2x - 5) = 0$
$3x = 0, \quad 2x - 5 = 0$
$X = 0, 2.5$</td></tr>
<tr><td>31</td><td>$2x^2 + 4x - 70 = 0, \quad a*c = 140$
<table><tr><td></td><td>x</td><td>10</td></tr><tr><td>2x</td><td>$2x^2$</td><td>10x</td></tr><tr><td>14</td><td>14x</td><td>140</td></tr></table>
$(2x + 14)(x + 10) = 0$
$2x + 14 = 0, \quad x + 10 = 0$
$X = -7, 10$</td></tr>
<tr><td>32</td><td>$X^2 - 12x + 36 = 0$
$(x - 6)(x - 6) = 0$
$X = 6$</td></tr>
<tr><td>33</td><td>$X^2 + 6x - 16 = 0$
$(x + 8)(x - 2) = 0$
$X = -8, 2$</td></tr>
<tr><td>34</td><td>$2x^2 + 9x + 7 = 0, \quad a*c = 14$
<table><tr><td></td><td>x</td><td>1</td></tr><tr><td>2x</td><td>$2x^2$</td><td>2x</td></tr><tr><td>7</td><td>7x</td><td>7</td></tr></table>
$(2x + 7)(x + 1)$
$2x + 7 = 0, \quad x + 1 = 0$
$X = -7/2, -1$</td></tr>
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