**NAME: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

I have found a couple of typing errors on this review. They have been fixed on this document.

M

**ALGEBRA**

**CHAPTER 7**

**TEST REVIEW**

**Solve using any method.**

1. $y=4x-7$ 2. $4x+y=-2$

 $y=2x+9$ $y=-5x+1$

Solve by setting the two equations Solve by substituting the second equation into

equal to each other the first equation

$4x-7=2x+9$ $4x+\left(-5x+1\right)=-2$

$2x-7=9$ $-x+1=-2$

$2x=16$ $-x=-3$

$x=8$ $x=3$

$y=4\left(8\right)-7=25$ $y=-5\left(3\right)+1=-14$

3. $y=-2x-1$ 4. $y+6=2x$

 $y=3x-16$ $4x-10y=4$

Solve by setting the two equations Rewrite the first equation to be in standard

equal to each other form and multiply by -2 to eliminate the *x*’s

$-2x-1=3x-16$ $-2x+y=-6$

$-1=5x-16$ $2\left[-2x+y=-6\right]$

$15=5x$ $-4x+2y=-12$

$3=x$ $4x-10y=4$

$y=3\left(3\right)-16=-7$ $-8y=-8$

 $y=1$

 $1+6=2\left(x\right)=3.5$

5. $4x+y=8$ 6. $2x+5y=20$

 $-3x-y=0$ $3x-10y=37$

Solve by adding the two equations to eliminate Multiply the first equation by 2 to eliminate

the *y*’s. the *y*’s.

$x=8$ $2\left[2x+5y=20\right]$

$4\left(8\right)+y=8$ $4x+10y=40$

$32+y=8$ $3x-10y=37$

$y=-24$ $7x=77$

 $x=11$

 $2\left(11\right)+5y=20$

 $22+5y=20$

 $5y=-2$

 $y=-\frac{2}{5}$

**Write a system of equations and solve.**

1. Two small pitchers and one large pitcher can hold 8 cups of water. One large pitcher minus one small pitcher constitutes 2 cups of water. How many cups of water can each pitcher hold?

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| **Variables** | **Ways talked about:** | **Equations** |
| *L* = # of cups the large pitcher can hold | Adding the two pitchers | $$L+2s=8$$ |
| *s* = # of cups the small pitcher can hold | Subtracting the small pitcher from the large pitcher | $$L-s=2$$ |

$L+2s=8\rightarrow L+2s=8\rightarrow L+2s=8$ $L+ \frac{10}{3}=8$

$L-s=2\rightarrow -1\left[L-s=2\right]\rightarrow -L+s=2$ $L=8- \frac{10}{3}= \frac{24}{3}- \frac{10}{3}= \frac{14}{3}$

 $3s=10$

 $ s= \frac{10}{3}$

 The large pitcher holds 4 2/3

 The small pitcher holds 3 1/3

2. A test has twenty questions worth 36 points. The test consists of True/False questions worth one point each. There are some short answer/show work problems worth 5 points each. How many of each type of question are on the test?

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| **Variables** | **Ways talked about:** | **Equations** |
| *T* = # of true/false questions | Number of problems on the test (20) | $$T+S=20$$ |
| *S* = # of short answer questions | Number of points (35) | $$1T+5S=36$$ |

$$T+S=20\rightarrow -1\left[T+S=20\right]\rightarrow -T-S=-20 $$

$$1T+5S=36\rightarrow 1T+5S=36 \rightarrow T+5S=36 $$

$4S= $16

$$S=4$$

There are 4 short answer questions.

There are 16 True/False questions.

3. Bill and Steve decide to spend the afternoon at an amusement park enjoying their favorite activities, the water slide and the gigantic Ferris wheel. Their tickets are stamped each time they slide or ride. At the end of the afternoon they have the following tickets:

 **Fun Time Amusements Fun Time Amusements**

 Water Slide: ![C:\Users\bmarvel\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\0Z74X1FL\MM900185588[1].gif]()![C:\Users\bmarvel\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\0Z74X1FL\MM900185588[1].gif]()![C:\Users\bmarvel\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\0Z74X1FL\MM900185588[1].gif]() Water Slide: ![C:\Users\bmarvel\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\0Z74X1FL\MM900185588[1].gif]()![C:\Users\bmarvel\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\0Z74X1FL\MM900185588[1].gif]()

 Ferris Wheel: ![C:\Users\bmarvel\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\0Z74X1FL\MM900185588[1].gif]()![C:\Users\bmarvel\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\0Z74X1FL\MM900185588[1].gif]()![C:\Users\bmarvel\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\0Z74X1FL\MM900185588[1].gif]() Ferris Wheel: ![C:\Users\bmarvel\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\0Z74X1FL\MM900185588[1].gif]()![C:\Users\bmarvel\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\0Z74X1FL\MM900185588[1].gif]()![C:\Users\bmarvel\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\0Z74X1FL\MM900185588[1].gif]()

 Total: $17.70 Total: $15.50

**Bill’s Ticket Steve’s Ticket**

How much does it cost to ride the Ferris Wheel?

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| **Variables** | **Ways talked about:** | **Equations** |
| *W* = cost of water slide | Bill | $$3W+3F=17.70$$ |
| *F* = cost of ferris wheel | Steve | $$2W+3F=15.50$$ |

$$3W+3F=17.70\rightarrow -1\left[3W+3F=17.70 \right] \rightarrow -3W-3F= -17.70$$

$$2W+3F=15.50\rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow 2W+3F=15.50 $$

$$-W= -2.20$$

$$W=\$2.20$$

$$2\left(2.20\right)+3F=15.50$$

$$4.40+3F=15.50$$

$$3F=11.10$$

$$F=\$3.70$$

4. Janice is mixing a container of water that is 95oF. She has a second container of water that is 55oF. How many liters of hot water and how many liters of cold water will she need to combine in order to have 12 liters of 70oF water?

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| **Variables** | **Ways talked about:** | **Equations** |
| *H* = liters of hot water | Number of liters (12) | $$H+C=12$$ |
| *C* = liters of cold water | Temperature of water | $$95H+55C=70\left(12\right)=840$$ |

$$H+C=12 \rightarrow -55\left[H+C=12 \right] \rightarrow -55H-55C=660$$

$$95H+55C=840 \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow \rightarrow 95H+55C=840 $$

$$40H=180$$

$$H=4.5 liters$$

$$C=7.5 liters$$

There are 4.5 liters of hot water.

There are 7.5 liters of cold water.

5. A motorboat can go 16 miles downstream on a river in 20 minutes. It takes 30 minutes for this boat to go back upstream the same 16 miles. Find the speed of the boat in still water.

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| **Variables** | **Ways talked about:** | **Equations** |
| r = speed of boat in still water | Downstream | $$16=20(r+c)$$ |
| c = speed of current | Upstream | $$16=30(r-c)$$ |

$$16=20\left(r+c\right)\rightarrow \rightarrow \frac{16}{20}= \frac{20(r+c)}{20} \rightarrow 0.8=r+c$$

$$16=30\left(r-c\right)\rightarrow \rightarrow \frac{16}{30}= \frac{30(r-c)}{30} \rightarrow 0.5333=r-c$$

$$1.333=2r$$

$r=0.67$ miles/minute

The time in this problem is given in minutes, so that your answer is also in minutes. If you were to convert the rate to miles/hour, it would look like this:

$$\frac{0.67 miles}{minute}× \frac{60 minutes}{1 hour}=40 miles/hour$$

**Graph the inequalities.**

1. $y\leq -4x+5$

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2. $y\geq x$

 $x-y>4$

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3. James has two part-time jobs. He earns $6.75/hour working at the ice cream shop. When he is babysitting his neighbor’s children, he earns $5/hour. How many hours at each job can he work if he can work no more than 15 hours a week, but would like to earn at least $80 each week.

A. Write a system of inequalities.

$$I+B \leq 15 $$

$$6.75I+5B \geq 80 $$

B. Graph your system.

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