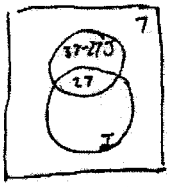
12/13/08 - Chiles Mini Mu Solutions - Algebra I

① $2.6+.4x = 1.4x+5.6$
$-5.6 \quad -.4x \quad -.4x \quad -5.6$
$-3 = x$ D

② $m = \frac{3-4}{1-0} = -1$
$y - y_0 = m(x - x_0)$
$y - 4 = -1(x-0)$
$y = -x+4$ A

③ $\frac{8}{1-\frac{1}{2}} = \frac{8}{\frac{1}{2}} = \frac{8}{1} \cdot \frac{2}{1} = 16$ D

④ 

$[37-27]+27+I+7 = 115$
$I = 71$
B

⑤ $\frac{x^2-5x+6}{x^2-x-2} = \frac{(x-3)(x-2)}{(x+1)(x-2)} = \frac{x-3}{x+1}$ A

⑥ $15x^{52}y z^{120} = 3 \cdot 5 \cdot x^{52} \cdot y \cdot z^{120}$
$6x^{26}z^{10} = 3 \cdot 2 \cdot x^{26} \cdot z^{10}$
$GCF = 3 \cdot x^{26} \cdot y^0 \cdot z^{10} = 3x^{26}z^{10}$ A

⑦ $2 \cdot 3 \cdot 5 \cdot x^{52} \cdot y \cdot z^{120} = 30x^{52}y z^{120}$ D

⑧ For each positive factor, there is an equivalent negative factor, so all cancel each other out.
$\left(\frac{1}{f_1} + \frac{1}{-f_1}\right) + \left(\frac{1}{f_2} + \frac{1}{-f_2}\right) + \ldots = 0$ D

⑨ $H = A+24$
$J = 5A$
$5J = H$
} given
$5J = A+24$ by substitution
$-5J = -25A$
$0 = -24A+24$
$A = 1$
$H = 1+24 = 25$ E

⑩ $\frac{9}{5}(50)+32 = 122^\circ$
D

⑪ $x+y = 42$
$x = 2y-9$
$2y-9+y = 42$
$3y = 51$
$y = 17$
$x = 42-17 = 25$
$25-17 = 8$ A

Chiles Mini Mu 12/13/2008
Algebra I - Horton
Whoed a Math Problem
Solutions

(12) $\frac{x}{y}$ = original

$\frac{x \cdot}{y-1} = \frac{1}{3}$

$3x = y-1$

$y = 3x+1$

$\frac{x}{y} = \frac{x}{3x+1}$

A) $52 \stackrel{?}{=} 3(17)+1$ Yes [A]
B) $45 \stackrel{?}{=} 3(11)+1$ No
C) $101 \stackrel{?}{=} 3(19)+1$ No
D) $22 \stackrel{?}{=} 3(13)+1$ No

(13) $2 < \sqrt{7} < 3$

$\sqrt{16} = 4$

A) $2 < \sqrt{7}$, so NO [C]
B) $2.2^2 = 4.84 < 7$ NO
C) $3.2^2 = 10.24 > 7$ YES
D) $4.1 > 4$ NO

(14) $(3 \cdot 2 + 3 - 2) = 7$

$(7 \cdot 7 + 7 - 7) = 49$

[D]

(15) $x^2 + 3x^2 - 4 = 4x^2 - 4 =$

$4(x^2-1) = 4(x+1)(x-1)$

[B]

(16) They first meet will be after Linda and Aisa run 70 meters combined. Each meet is $3(t)+4(t) = 70$ or when $t = 10$. They meet every 10 seconds, so $10 \cdot 7 = 70$ seconds [B]

(17) $x - \frac{2}{5}x = \frac{3}{5}x$

$(\frac{3}{5}x) - \frac{1}{3}(\frac{3}{5}x) = \frac{2}{3}(\frac{3}{5}x) = \frac{2}{5}x = 12$

$x = 30$ [B]

(18) $\frac{37}{(37+74)} = \frac{37}{111} = \frac{1}{3}$ [C]

(19) c is children in the house
c is a multiple of 7, since $c \bmod 7 = 0$
the ones digit of c is either 3 or 8 because of the other condition
the smallest number like this is 28.
$99 - 28 = 71$ [D]

(20) $3x+1 > 4 \quad 3x > 3 \quad x > 1$
$-3x-1 > 4 \quad -3x > 5 \quad x < -\frac{5}{3}$
$x > 1 \cup x < -\frac{5}{3}$ [A]

(21) $\frac{1}{3}x + y = 3$
$x + 3y = 9$ [B]

(22) $\frac{15}{4\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{15\sqrt{3}}{4 \cdot 3} = \frac{5\sqrt{3}}{4}$ [A]

Chiles Mini Mu 12/13/2008
Algebra I - Horton
Whoed a Math Problem
Solutions

(23) $4x^2+3x-4=0$

$$\frac{-3\pm\sqrt{9-4(4)(-4)}}{2(4)}$$

$$\frac{-3\pm\sqrt{73}}{8}$$ E

(24) $\frac{-b+\sqrt{b^2+4ac}}{2a}+\frac{-b-\sqrt{b^2-4ac}}{2a}=$

$$\frac{-2b}{2a}=-\frac{b}{a}=\frac{5}{3}$$ C

(25) Distance (0,0) to (5,-5)

$$\sqrt{(5-0)^2+(-5)^2}=$$

$\sqrt{50}=\sqrt{25}\cdot\sqrt{2}=5\sqrt{2}$ A

(26) m of other line $=\frac{2-0}{1-0}=2$

m of this line $=-\frac{1}{2}$

$y-1=-\frac{1}{2}(x-1)$

$y=-\frac{1}{2}x+\frac{3}{2}$ C

(27) In 1 hour, the mayor can mow $\frac{1}{3}$ lawns, and Jojo can mow $\frac{1}{5}$ lawns. Together, they can mow $\frac{1}{5}+\frac{1}{3}=\frac{8}{15}$ lawns. $\frac{8 \text{ lawns}}{15 \text{ hours}}\cdot 30 \text{ hours}=16$ lawns

D

(28) (2,3) and (0,1)

$(\frac{2+0}{2},\frac{3+1}{2})=(1,2)$

B

(29) $y=2x \quad 2x=x+3$

$y=x+3 \quad x=3$

$y=2(3)=6$

(3,6) A

(30) $\sqrt{8}=\sqrt{2^2\cdot 2}=\sqrt{2^2}\cdot\sqrt{2}=2\sqrt{2}$

B