12-2
M65

Quiz 9 solutions
(Not directly on test 4)

(11) $(x^2+2)\cdot(x-7)$

$= x^3 - 7x^2 + 2x - 14$

(O) (I) (L)

12 (e) $(x^2-3)(x^2-3)$

$= x^4 - 3x^2 - 3x^2 + 9$

$= x^4 - 6x^2 + 9$

(F) (I) (L)

Quiz 10
(Directly on Test 4)

(5) $8.13 \text{ km}^4 = 8{,}1300$ (2)

(5) 0.00892 (1)

Test 3

2.7, 4.1 – 4.6, 4.7 (E.C.)

Test 4

Quiz 10, Quiz 11 (starts 4.8, End 6.2) Dec 11 (WED)

→ Return Mon Dec 9th

↑ Quiz 12: 6.3, 6.4, 6.5, 6.6

Assigned	Due
12-2	12-4

Test 5

↓

Quiz 13: 6.7, 8.1, 8.2*

Assigned	Due
12-4	12-9

Quiz 14 (E.C.) 8.6, 9.1, 9.3*

*omit?

Assigned	due
12-9	12-11
	12-18 (E.C.)

Quiz 12

6.3

Ex → Prof

1 → 6

2 → 11, 9

3 → 43, 39

4 → 43, 39

5 → 45, 47

6 → 59, 61, 63

6.4

(5e), 11, 19, 21, 28, 47

6.5

5, 11, 15, 19, 29

6.6

11, 13, 15, 23, ← cross. — multiply

basic!

Quiz 11

(11) $x \overset{S}{=} x^2 - 7$

(12) solve for x:

$$\begin{array}{r} x = x^2 - 7 \\ -x \quad -x \\ \hline 0 = x^2 - x - 7 \end{array}$$

cannot be factored

But use sec 9.3

$$ax^2 + bx + c = 0$$

$$x = \frac{-b \pm \sqrt{b^2 - 4 \cdot a \cdot c}}{2 \cdot a}$$

Sec 9.3

$$0 = x^2 - x - 7$$

$$x^2 - x - 7 = 0$$

$$ax^2 + bx + c = 0$$

$$1 \cdot x^2 + (-1) \cdot x + (-7) = 0$$

$$a = 1,\ b = -1,\ c = -7$$

$$x = \frac{-b \pm \sqrt{b^2 - 4 \cdot a \cdot c}}{2 \cdot a}$$

$$= \frac{-(-1) \pm \sqrt{(-1)^2 - 4 \cdot 1 \cdot (-7)}}{2 \cdot 1}$$

$$= \frac{1 \pm \sqrt{1 + 28}}{2}$$

$$= \frac{1 \pm \sqrt{29}}{2} = \frac{1 + \sqrt{29}}{2} \text{ OR } \frac{1 - \sqrt{29}}{2}$$

6.3

(6) $\frac{8}{y^2} + \frac{2}{y^2} = \frac{8+2}{y^2}$

CD!

$= \frac{10}{y^2}$

TRY (5)!

(9) $\frac{4}{(a+3)} + \frac{5}{(a+3)}$

$= \frac{4+5}{(a+3)}$ $= \frac{9}{(a+3)}$

CD!

$= \frac{9}{a+3}$

6.3

(43.) $15a^4b^7, 10a^2b^8$

LCM = LCD

LCD = LCM = $\boxed{30a^4b^8}$

Proof: $\frac{30a^4b^8}{15a^4b^7} = 2b$ } use these later

$\frac{30a^4b^8}{10a^2b^8} = 3a^2$ }

table

F	G*
3	1
5	1
2	1
a	4
b	8

LCM = LCD = $3^1 \cdot 5^1 \cdot 2^1 \cdot a^4 \cdot b^8$

$= 30a^4b^8$

$15 = 3 \cdot 5$

$10 = 2 \cdot 5$

* G = Greatest # of times in single factorization

follow up:

"Lord of Rings"

$$\frac{1}{15a^4b^7} + \frac{1}{10a^2b^8}$$

$LCD = 30a^4b^8$

$$\frac{30a^4b^8}{15a^4b^7} = 2b$$

$$\frac{30a^4b^8}{10a^2b^2} = 3a^2$$

$$\frac{1}{15a^4b^7} \cdot \frac{2b}{2b} + \frac{1}{10a^2b^8} \cdot \frac{3a^2}{3a^2}$$

$$\frac{2b}{30a^4b^8} + \frac{3a^2}{30a^4b^8}$$

$$= \frac{2b + 3a^2}{30a^4b^8}$$

(39.) 6, 12, 15

LCM : $6 = 2 \cdot 3$

$12 = 2 \cdot 2 \cdot 3$

$15 = 3 \cdot 5$

F	6
2	2
3	1
5	1

LCD = LCM

$= 2^2 \cdot 3 \cdot 5$

$= 4 \cdot 3 \cdot 5$

$= 4 \cdot 15 = 60$

TRY THIS:

$\frac{1}{6} + \frac{1}{12} + \frac{1}{15}$

$= \frac{1}{6} \cdot \frac{10}{10} + \frac{1}{12} \cdot \frac{5}{5} + \frac{1}{15} \cdot \frac{4}{4}$

(45.) $2(y-3)$, $6(y-3)$

FORMAL LIST → $2^1 \cdot (y-3)^1$, $6^1 \cdot (y-3)^1$

USING EXPONENT 1

$LCD = LCM = 6 \cdot (y-3)$

F	6
2	1
3	1
$(y-3)$	1

$2 = 2$

$6 = 2 \cdot 3$

$LCM = 2^1 \cdot 3^1 \cdot (y-3)^1$

$= 6 \cdot (y-3)$

(47.) $x^2-2x-15$, x^2-9

x^2-5x

$(x+3)(x-5)$, $(x+3)(x-3)$

F	6
$(x+3)$	1
$(x-5)$	1
$(x-3)$	1

$GCF = (x+3)^1 \cdot (x-5)^1 \cdot (x-3)^1 = (x+3)(x-5)(x-3)$

52.

$$\frac{5}{6t^4} \;\underbrace{)}\; \frac{5}{18t^2}$$

ADD

$6 = 2 \cdot 3$

$18 = 2 \cdot 3 \cdot 3$

LCD =

F	G
2	1
3	2
t	4

GCF $= 2 \cdot 3^2 \cdot t^4$

$= 2 \cdot 9 \cdot t^4$

$= 18t^4$

$$\frac{5}{6t^4} + \frac{5}{18t^2} = \frac{5}{6t^4} \cdot \frac{\boxed{3}}{\boxed{3}} + \frac{5}{18t^2} \cdot \frac{t^2}{t^2}$$

$\frac{18t^4}{6t^4} = 3$; $\frac{18t^4}{18t^2} = t^2$

$$\frac{15}{18t^4} + \frac{6t^2}{18t^4}$$

$$= \frac{15 + 6t^2}{18t^4}$$

$5 = 5$

(6) (b) $\frac{7}{3x^4y^2} + \frac{4}{9xy^3}$

$3 = 3$

$9 = 3 \cdot 3$

$= \frac{7}{3x^4y^2} \cdot \frac{3y}{3y} + \frac{4}{9xy^3} \cdot \frac{x3}{x3}$

F	G
3	2
x	4
y	3

$GCD = 3^2 x^4 y^3$

$= 9x^4y^3$

$$= \frac{21y}{9x^4y^3} + \frac{4x^3}{9x^4y^3}$$

$$= \frac{21y + 4x^3}{9x^4y^3}$$

6.4 (5.) $\frac{3}{x^2} + \frac{5}{x}$

F	6
x	(2) LCD $= x^2$

$$\frac{3}{x^2} \cdot \frac{\square}{\square} + \frac{5}{x} \cdot \frac{\triangle}{\triangle}$$

$\frac{x^2}{x^2} = 1$; $\frac{x^2}{x} = x$

$$= \frac{3}{x^2} + \frac{5x}{x^2}$$

$$= \frac{3+5x}{x^2}$$

(4)

$$\frac{-2}{3xy^2} + \frac{6}{x^2y^3}$$

$3 = 3$

F	G
3	1
x	2
y	3

$3^1 \cdot x^2 \cdot y^3$

$= 3x^2y^3$

$$\frac{-2 \cdot xy}{3xy^2 \cdot xy} - \frac{6 \cdot 3y}{x^2 \cdot y^2}$$

$$\frac{3x^2y^3}{3xy^2} = y \qquad \frac{3x^2y^3}{x^2y^2} = 3y$$

$$-\frac{2xy}{3x^2y^3} - \frac{18y}{3x^2y^3}$$

6.4

(11.) $\dfrac{-2xy-18y}{3x^2y^3} = \dfrac{-2(xy+9)}{3x^2y^3}$

(19.) $\dfrac{4z-9}{3z} - \dfrac{(3z-8)}{4z}$

$LCD = 12z$

$\Rightarrow \dfrac{4z-9}{3z}\cdot\dfrac{4}{4} - \dfrac{(3z-8)}{4z}\cdot\dfrac{3}{3}$

$= \dfrac{4\cdot(4z-9)}{12z} - \dfrac{3\cdot(3z-8)}{12z}$

$= \dfrac{16z-36-9z+24}{12z} = \dfrac{7z-12}{12z}$

$z = z$ee letter

(21.)

$$\frac{3c+d}{cd^2} + \frac{c-d}{c^2d}$$

$$LCD = c^2d^2$$

$$= \frac{3c+d}{cd^2} \cdot \frac{c}{c} + \frac{(c-d)}{c^2d} \cdot \frac{d}{d}$$

$$\frac{c^2d^2}{cd^2} = c \qquad \frac{c^2d^2}{c^2d} = d$$

Finish at home

CHECK Back of book

(27.) $\frac{c\cdot(3c+d)+d\cdot(c-d)}{c^2d^2} = \frac{3c^2+cd+cd-d^2}{c^2d^2} = \frac{3c^2+2cd-d^2}{c^2d^2}$

$= \frac{(3c-d)(c+d)}{c^2d^2}$

(28.)

$$\frac{y}{(y-3)} + \frac{12}{(y+4)}$$

$LCD = (y-3)\cdot(y+4)$

F	6
$(y-3)$	1
$(y+4)$	1

$\Big\} (y-3)^1\cdot(y+4)^1$

$$= \frac{y}{(y-3)}\cdot\frac{(y+4)}{(y+4)} + \frac{12}{(y+4)}\cdot\frac{(y-3)}{(y-3)}$$

$\frac{(y-3)(y+4)}{(y-3)} = (y+4)$; $\frac{(y-3)(y+4)}{(y+4)} = (y-3)$

$$= \frac{y(y+4)}{(y-3)(y+4)} + \frac{12\cdot(y-3)}{(y-3)(y+4)}$$

$$= \frac{y(y+4)+12(y-3)}{(y-3)(y+4)}$$

$$= \frac{y^2+4y+12y-36}{(y-3)(y+4)}$$

$$= \frac{y^2+16y-36}{(y-3)(y+4)}$$

$$= \frac{(y+2)(y+18)}{(y-3)(y+4)}$$

(47.) skip until Quiz 12

ALSO: TRY (27.)

6.5

(5.) $$\frac{1+\frac{1}{4}}{2+\frac{3}{4}}$$

$$= \frac{\frac{1}{1}+\frac{1}{4}}{\frac{2}{1}+\frac{3}{4}}$$; LCD of 1, 4, 4 and 4. LCD = 4

CLEAR ALL FRACTIONS with LCD. ← the

$$\frac{4\cdot\left(\frac{1}{1}+\frac{1}{4}\right)}{4\cdot\left(\frac{2}{1}+\frac{3}{4}\right)} = \frac{4+\frac{4}{4}}{8+\frac{12}{4}}$$

$$= \frac{4+1}{8+3} = \frac{5}{11}$$

(11)

$$\frac{\frac{10}{\epsilon}}{\left(\frac{2}{\epsilon^2}-\frac{5}{\epsilon}\right)}$$

" LCD of ϵ, ϵ^2 and ϵ

$$\boxed{LCD = \epsilon^2}$$

$$\frac{\epsilon^2 \cdot \frac{10}{\epsilon}}{\epsilon^2\left(\frac{2}{\epsilon^2}-\frac{5}{\epsilon}\right)}$$

$$= \frac{10\cdot\epsilon}{2-5\epsilon} = \text{answer}$$

wrong to do this: $\frac{10\epsilon}{2-5\epsilon} = \frac{10}{2-5} = -\frac{10}{3}$

(15.)

$$\frac{\frac{x}{6}-\frac{3}{x}}{\frac{1}{3}+\frac{1}{x}}$$

* LCD of 6, 3, x, and 3

LCD = $6 \cdot x$

$6 = 2 \cdot 3$

	6
2	1
3	1
x	1

LCD = $2 \cdot 3 \cdot x^1$

$= 6 \cdot x$

$$\frac{6x \cdot \left(\frac{x}{6}-\frac{3}{x}\right)}{6x \cdot \left(\frac{1}{3}+\frac{1}{x}\right)} = \frac{x^2-18}{2x+6}$$

MAIN

$$= \frac{x^2 - 18}{2 \cdot (x+3)}$$

(19.) Classic!

$$\frac{\frac{1}{t^2} + 1}{\frac{1}{t} - 1}$$

$$= \frac{\left(\frac{1}{t^2} + \frac{1}{1}\right) \cdot t^2}{\left(\frac{1}{t} - \frac{1}{1}\right) \cdot t^2}$$

LCD of t^2, 1, and t is t^2

LCD = t^2

$$= \frac{1 + t^2}{t - t^2}$$

MAIN

$$= \frac{1 + t + t^2}{t \cdot (1 - t)}$$ OK

29. $$\frac{\left(\frac{3}{ab^4} + \frac{4}{a^3b}\right) \cdot a^3b^4}{\left(\frac{5}{a^3b} - \frac{3}{ab}\right) \cdot a^3b^4}$$ → LCD $= a^3b^4$

$$= \frac{\boxed{3a^2} + \boxed{4b^3}}{\boxed{5b^3} - \boxed{3a^2b^3}}$$ MAIN and only answer

6.6

(11.) $y + \frac{4}{y} = -5$

$\rightarrow \frac{y}{1} + \frac{4}{y} = \frac{-5}{1}$

LCD of 1, y and 1 = y

$y \cdot \left(\frac{y}{1} + \frac{4}{y}\right) = y \cdot \left(\frac{-5}{1}\right)$

$y^2 + 4 = -5y$

$$y^2+4 = -5y$$

$$+5y \quad +5y$$

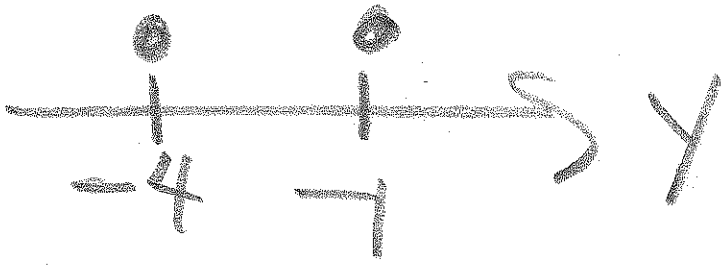
$$y^2+5y+4=0$$

$$(y+1)(y+4)=0$$

$$y+1=0 \quad \text{OR} \quad y+4=0$$

$$-1 \quad -1 \qquad -4 \quad -4$$

$$y=-1 \quad \text{OR} \quad y=-4$$



(15) $\frac{2}{x} = \frac{5}{x} - \frac{1}{4}$

LCD = $4x$

$4x \cdot \left(\frac{2}{x} = \frac{5}{x} - \frac{1}{4}\right)$

$8 = 20 - x$

$-20 \quad -20$

$-12 = -x$

$12 = x$

Rule
$a = -b$
$a = b$

(23)

$$\frac{3}{(x-4)} = \frac{5}{(x+1)}$$

$$\frac{a}{b} = \frac{c}{d}$$

same as

$$a \cdot d = b \cdot c$$

$$3 \cdot (x+1) = (x-4) \cdot 5$$

$$3x + 3 = 5x - 20$$

(23.)

$$3x + 3 = 5x - 20$$

$$-3x \qquad -3x$$

$$3 = 2x - 20$$

$$+20 \qquad +20$$

$$23 = 2x$$

$$\frac{23}{2} = x$$