~~MAT 0012C~~

Solutions for some Problems

Final Exam Practice

① A) $P = 2L + 2W$ (Rectangle)

$P = 2(13) + 2(8)$

$= 26 + 16$

$= 42$ feet (not square feet)

B

② A) Area $= L \cdot W$ □

$A = (8)(40)$

$= 320\ m^2$

or 320 square meters

C

③ C) Area $= \frac{1}{2}bh$ △

$A = \frac{1}{2}bh = \frac{1}{2}(12)(14) =$ $168\ in^2$

B

④ B) $V = L \cdot W \cdot H$ cube/box

$V = (19\ in)(12\ in)(10\ in)$

$=$ $2280\ in^3$ or 2280 cu. in

C

⑤ c) $15 + 7(-3) - (6+4)$

$15 - 21 - 10$

$-31 + 15$

-16

D

⑥ c) $-2^2 + (3 \cdot -19)$

$-4 + (-16)$

$-4 - 16 = -20$

D

(7) D) $(-7+4)^2 - (-4)(5)$

$(-3)^2 + 20$

$9 + 20 = \boxed{29}$ D

(8) D) $-|2-3| = -|-1| = \boxed{-1}$ A

(9) C) $|(-3)^2| - 4 = |9| - 4$

$= 9 - 4 = \boxed{5}$ C

(10) E) $-3^2 - |4-7|$

$-9 - |-3| = -9 - 3 = \boxed{-12}$ B

(11) B) $3a + 4a - 5 - 6a$

$3a + 4a - 6a - 5$

$\boxed{a-5}$ D

(12) C) $-\frac{1}{3}\left(\frac{1}{2}x + \frac{1}{4}x\right)$ C

$-\frac{1}{6}x - \frac{1}{12}x = -\frac{2}{12}x - \frac{1}{12}x = \boxed{\frac{-3}{12}x} = \boxed{-\frac{1}{4}x}$

(13) C) $-2.3(4x + 3.5x)$

$-9.2x - 8.05x = \boxed{-17.25x}$ D

(14) C) $x(x-y)$ $x=5$ $y=3$

$5(5-3) = 5(2) = \boxed{10}$ C

D) $2xy - 3x^2$

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

$2\left(\frac{1}{2}\right)\left(-\frac{1}{2}\right) - 3\left(+\frac{1}{2}\right)^2$

$-\frac{1}{2} - 3\left(\frac{1}{4}\right)$

$-\frac{1}{2} - \frac{3}{4} = -\frac{2}{4} - \frac{3}{4} = \left(-\frac{5}{4}\right)$

lcd

(16) B) $\dfrac{y^2 - 3xy}{x = -3.2 \quad y = 0.2}$

$(0.2)^2 - 3(-3.2)(0.2)$

$0.04 + 1.92$

(1.96) (C)

(17) C) solve for w:

$10w = -5(w-3)$

$10w = -5w + 15$

$15w = 15$ (A)

$(w = 1)$

(18) B) $4(x+6) = 9x + 13$

$4x + 24 = 9x + 13$

$24 - 13 = 5x$

$11 = 5x$ (C)

$\left(\frac{11}{5} = x\right)$

(19) B) $\frac{1}{2}(x+4) = -6$

mult. by lcd 2

$\frac{1}{2}x + \frac{4}{2} = -6$

$\frac{1}{2}x + 2 = -6$ (C)

$x + 4 = -12$

$(x = -16)$

(20) c) $\frac{y}{6} + 1 = \frac{4}{3}$

lcd 6

$y + 6 = 4\left(\frac{6}{1}\right)$

$y + 6 = 8$

$y = 2$ (C)

(21) D) $6.25 = d - 7.50$

$6.25 + 7.50 = d$ (D)

$13.75 = d$

(22) c) $5.6x + 2 = 4.6x$

$-4.6x \quad -4.6x$ (A)

$1x + 2 = 0$

$x = -2$

(23) c) $A = \frac{1}{2}(b + B)h$

$A = 20$

$b = 2$

$B = 3$

$A = \frac{1}{2}(2+3)(20)$

$= 5(10) = 50$ (C)

(24) c) $BP = A$

$(12)(1.75) = P$ (new price) (A)

or $12 + 12(.75) = P$

(25) c) $BP = A$

B = "A" from problem.

$A = (1.07) = 45$

or

$A + A(0.07) = 45$ (C)

(26) C) $\frac{1}{5}(N) + \frac{1}{2}(N) = \boxed{\frac{N}{5} + \frac{N}{2}}$ (C)

(27) D) $-2a(5a^2 - 6) = \boxed{-10a^3 + 12a}$ (A)

(28) D) $-8a^3(4a^2 - 5a + 7)$

$\boxed{-32a^5 + 40a^4 - 56a^3}$ (B)

(29) C) $12(3x + 9)$

$\boxed{36x + 108}$ (B)

(30) D) $(x-11)(-5x + 4)$ (FOIL)

$-5x^2 + 4x + 55x - 44$

$\boxed{-5x^2 + 59x - 44}$ (D)

(31) C) $\left(2x + \frac{1}{2}\right)\left(4x - \frac{1}{4}\right)$

$= 8x^2 - \frac{1}{4}(2x) + \frac{1}{2}(4x) - \frac{1}{8}$

$= 8x^2 - \frac{1}{2}x + 2x - \frac{1}{8}$ (D)

$= 8x^2 - \frac{1}{2}x + \frac{4}{2}x - \frac{1}{8} = \boxed{8x^2 + \frac{3}{2}x - \frac{1}{8}}$

(32) B) $(x-4)(2.5x + 0.6)$ (FOIL)

$2.5x^2 + 0.6x - 10x - 2.4$

$\boxed{2.5x^2 - 9.4x - 2.4}$ (C)

(32) c) $(3.5x - 1.4)^2$ (FOIL)

$= (3.5x - 1.4)(3.5x - 1.4)$

$= 12.25x^2 - 4.9x - 4.9x + 1.96$

$= \boxed{12.25x^2 - 9.8x + 1.96}$

(33) c) $\left(\frac{2}{3}x^2 - \frac{1}{8}x + \frac{2}{3}\right) + \left(\frac{3}{4}x^2 - \frac{3}{4}x - \frac{1}{6}\right)$

combine like terms

$\underbrace{\frac{2}{3}x^2 + \frac{3}{4}x^2}_{\text{lcd } 12} \quad \underbrace{-\frac{1}{8}x - \frac{3}{4}x}_{\text{lcd } 8} \quad \underbrace{+\frac{2}{3} - \frac{1}{6}}_{\text{lcd } 6}$

$\frac{8}{12}x^2 + \frac{9}{12}x^2 \qquad -\frac{1}{8}x - \frac{6}{8}x \qquad \frac{4}{6} - \frac{1}{6} \rightarrow \frac{3}{6} = \frac{1}{2}$

$\boxed{\frac{17}{12}x^2 - \frac{7}{8}x + \frac{1}{2}}$

(34) c) $(5x^7 + 17x^4 - 5) - (-13x^4 + 2x^7 + 7)$

$5x^7 + 17x^4 - 5 + 13x^4 - 2x^7 - 7$

$\boxed{3x^7 + 30x^4 - 12}$

watch signs closely

(35) B) $[(3x^2 + 2x + 7) - (4x^2 + 2x - 3)]$

$- [(4x^2 + 3x - 6) + (-2x^2 + 3x + 4)]$

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

$2x - 2x - 3x + 3x = -6x$

$7 + 3 + 6 - 4 = 12$

$\boxed{-3x^2 - 6x + 12}$

(A)