Solutions to Final Exam Review Packet

UNIT 1

① $X + (X+1) = 225$

$X + X + 1 = 225$

$2X + 1 = 225$

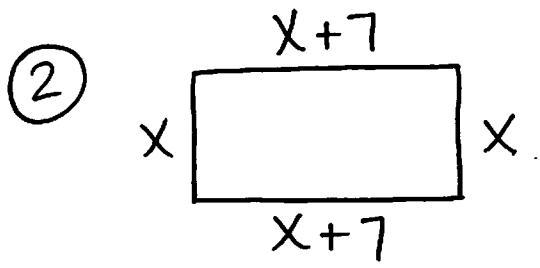
$-1 \quad -1$

$2X = 224$

$\frac{2X}{2} = \frac{224}{2}$

$X = 112$

112 + 113

② 

width = 11 cm

length = 18 cm

$4X + 14 \geq 58$

$-14 \quad -14$

$4X \geq 44$

$\frac{4X}{4} \geq \frac{44}{4}$

$X \geq 11$

③ $7x^5 - 6x^2 + 8y - 2z + 9$

terms: $7x^5, -6x^2, 8y, -2z, 9$

variables: $x, y, \& z$

coefficients: $7, -6, 8, \& -2$

constant: 9

④ $300 \div [2(2+3)^2]$

$300 \div [2(25)]$

$300 \div 50$

$\boxed{6}$

⑤ $3 \cdot 6 + 9 \div 3 - 6$

$18 + 3 - 6$

$21 - 6$

$\boxed{15}$

⑥ $\frac{8^2 - 6(4)}{2(5)} - 6$

$\frac{64 - 24}{10} - 6$

$\frac{40}{10} - 6$

$4 - 6$

$\boxed{-2}$

⑦ $\frac{6^2 - 4^2}{2(3-2)} - 2^4$

$\frac{36 - 16}{2(1)} - 16$

$\frac{20}{2} - 16$

$10 - 16$

$\boxed{-6}$

(8) $\frac{3 \text{ days}}{1} \cdot \frac{24 \text{ hrs.}}{1 \text{ day}} \cdot \frac{60 \text{ min.}}{1 \text{ hr.}} \cdot \frac{60 \text{ sec.}}{1 \text{ min}}$

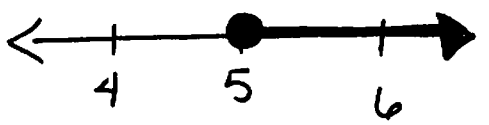
$= \boxed{259,200 \text{ seconds}}$

(9) $\frac{65 \text{ miles}}{1 \text{ hr.}} \cdot \frac{5280 \text{ ft.}}{1 \text{ mile}} \cdot \frac{1 \text{ hr.}}{60 \text{ min.}}$

$= \boxed{5,720 \text{ ft/min.}}$

(10) $\frac{-x}{-1} \leq \frac{-5}{-1}$

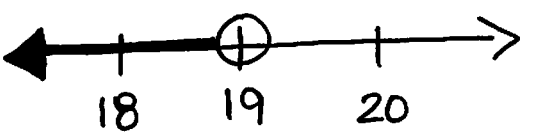
$\boxed{x \geq 5}$



(11) $x - 6 < 13$

$+6 \quad +6$

$\boxed{x < 19}$

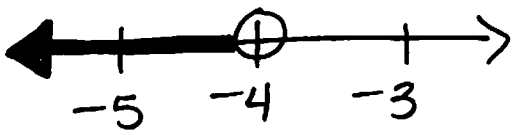


(12) $-3x+2 > 14$

$-2 \quad -2$

$\frac{-3x}{-3} > \frac{12}{-3}$

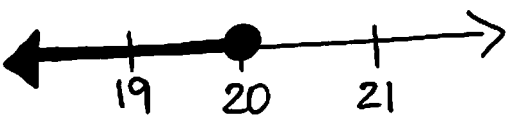
$\boxed{x < -4}$



(13) $8p \leq 7p + 20$

$-7p \quad -7p$

$\boxed{p \leq 20}$



(14) $6(3n-5)-7n=25$

$18n-30-7n=25$

$11n-30=25$

$+30 \quad +30$

$\frac{11n}{11}=\frac{55}{11}$

$\boxed{n=5}$

(15) $\cancel{5}\cdot\frac{x+5}{\cancel{5}}=-3\cdot 5$

$x+5=-15$

$-5 \quad -5$

$\boxed{x=-20}$

(16) $4=5r-16$

$+16 \quad +16$

$\frac{20}{5}=\frac{5r}{5}$

$4=r$

$\boxed{r=4}$

(17) $\frac{4}{3} \cdot \frac{3}{4} g = -\frac{27}{1} \cdot \frac{4}{3}$ (with 3s and 4s cancelled, 27 → −9, 3 → 1)

$$g = -36$$

(18) $y = 22x + 22$

(19) $y = 8x - 5$

(20) $x^4 \cdot x^5 = x^9$

(21) $(3k^4)^2 (k^6) = 9k^8 \cdot k^6 = 9k^{14}$

(22) $(8c^{-5})^{-2} = 8^{-2} c^{10} = \frac{c^{10}}{8^2} = \frac{c^{10}}{64}$

(23) $9x^0 = 9 \cdot 1 = 9$

(24) $\left(\frac{w^2}{xy^3}\right)^6 \cdot \left(\frac{3x}{y}\right)^4 = \frac{w^{12}}{x^{6\,2} y^{18}} \cdot \frac{81x^4}{y^4}$ (with x^6 changed to x^2 and x^4 crossed out)

$$= \frac{81w^{12}}{x^2 y^{22}}$$

(25) $\left(\frac{5}{7}\right)^{-2} = \left(\frac{7}{5}\right)^{2} = \boxed{\frac{49}{25}}$

(26) $y = -4x + 16$

$-16 \qquad -16$

$y - 16 = -4x$

$\frac{y}{-4} \quad \frac{-16}{-4} \quad \frac{-4x}{-4}$

$-\frac{1}{4}y + 4 = x$

$$\boxed{x = -\frac{1}{4}y + 4}$$

(27) $3 \cdot m = \frac{1}{3}\pi r \cdot 3$

$\frac{3m}{\pi} = \frac{\pi r}{\pi}$

$$\boxed{r = \frac{3m}{\pi}}$$

(28) Exponential Decay

(29) Exponential Growth

(30) a) $10a + 5d = 50$

b) $10(4) + 5d = 50$

$40 + 5d = 50$

$-40 \qquad -40$

$5d = 10$

$\frac{5d}{5} = \frac{10}{5}$

$d = 2$ **2 desserts**

c) $10a + 5(6) = 50$

$10a + 30 = 50$

$-30 \quad -30$

$10a = 20$

$\frac{10a}{10} = \frac{20}{10}$

$a = 2$ **2 appetizers**