Advanced Functions – P: Review of Math 1, 2, 3 WS Name: Key

Directions: Complete each Math 1, 2, or 3 problem. Must show work for credit!

1.) Solve inequality & put answer in interval notation:

$-8(x+3)+2(-6x-4)\geq 7x+5x$

$-8x-24-12x-8\geq 12x$

$-20x-32\geq 12x$

$+12x \quad +32 \quad +12x+32$

$\frac{-32x}{-32}\geq\frac{32}{-32} \rightarrow x\leq -1$

$(-\infty,-1]$

2.) Given: $f(x)=2x+4$
Find: $f(12)+3f(-5)$

① $f(12)=2(12)+4=28$

$f(-5)=2(-5)+4=-6$

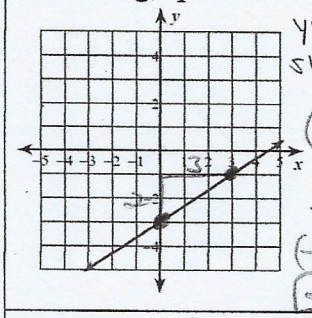
② $28+3(-6)=$ **10**

3.) Simplify: $\frac{x^2+2x-48}{2x^2-12x}$

$=\frac{(x-6)(x+8)}{2x(x-6)}$

$=\frac{x+8}{2x}$

4.) Write the standard form of the line graphed below:



y-int $=-3\rightarrow b=-3$

slope $=\frac{2}{3}\rightarrow m=\frac{2}{3}$

$y=\frac{2}{3}x-3$ ·3

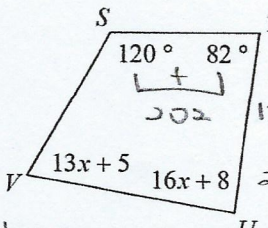
$3y=2x-9$

$-2x \quad -2x$

$-2x+3y=-9$ ·(−1)

$2x-3y=9$

5.) Given: Quadrilateral STUV
Find: measure angle V



int $\angle$'s $=360$

① $13x+5+16x+8+202=360$

$29x+215=360$

$29x=145$

$x=5$

② $\angle V=13(5)+5$

$\angle V=70°$

6.) Solve for x:

$x-\sqrt{8x-15}=0$

$-x \quad -x$

$\frac{-\sqrt{8x-15}}{-1}=\frac{-x}{-1}$

$(\sqrt{8x-15})^2=(x)^2$

$8x-15=x^2$

$-8x+15 \quad -8x+15$

$x^2-8x+15=0$

$(x-5)(x-3)=0$

(but check)

$x=5$
$x=3$

7.) George spent \$13.25 on 4 hotdogs and 5 bags of chips. Kong spent \$12.70 on 3 hotdogs and 7 bags of chips. Ben wants 6 hotdogs and 3 bags of chips. How much will Ben have pay?

① $(4h+5c=13.25)3$

$(3h+7c=12.70)4$

$12h+15c=39.75$

$-(12h+28c=50.80)$

$-13c=-11.05$

$\frac{-13c}{-13}=\frac{-11.05}{-13}$

$c=.85$

② $4h+5(.85)=13.25$

$4h=9$

$h=2.25$

③ Ben $=6(2.25)+3(.85)$

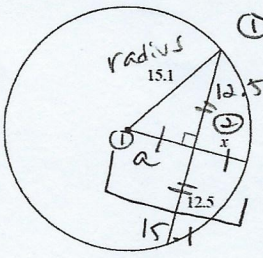
\$16.05

8.) Simplify completely:

$\frac{8x^{-1}(x^3)^{-2}}{2x^4}=\frac{8x^{-1}\cdot x^{-6}}{2x^4}$

$=\frac{8x^{-7}}{2x^4}=\frac{4x^{-11}}{}=\frac{4}{x^{11}}$

9.) Find value of x:



① $a^2+12.5^2=15.1^2$

$a^2=71.76$

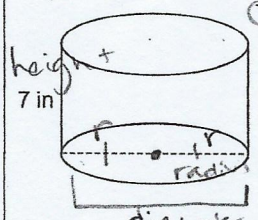
$a=8.5$

② $x=15.1-8.5$

$x=6.6$

10.) The volume of a cylinder below is 791.7 in². What is the diameter of the cylinder?

$V=\pi r^2 h$



① $\frac{791.7}{7\pi}=\frac{\pi r^2 \cdot 7}{7\pi}$

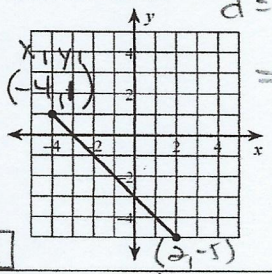
$r^2=36$

$r=6$

② diameter $=2r$

$=2(6)=$ 12 in

11.) What is the length of the line segment below? Keep in simplified radical form.



$d=\sqrt{(x_2-x_1)^2+(y_2-y_1)^2}$

$=\sqrt{(2-(-4))^2+(-5-1)^2}$

$=\sqrt{6^2+(-6)^2}$

$=\sqrt{72}=\sqrt{6^2\cdot 2}$

$=6\sqrt{2}$

12.) $P(x)=x^3+9x^2+8x-60$ with has factors of $(x+5)$ and $(x-2)$. What is its remaining factor?

-5 | 1 9 8 −60

↓ −5 −20 60

2 | 1 4 −12 0

↓ 2 12

1 6 10

$\hookrightarrow (x+6)$

13.) What is the mean, median, and mode of data below?

12, 13, 13, 14, 17, 17, 17, 17, 18, 18

mean $=\frac{156}{10}=15.6$

median $=\frac{17+17}{2}=17$

mode $=17$

Age at First Job

Age	Frequency
12	1
13	2
14	1
17	4
18	2
Total	10

15.6, 17, 17

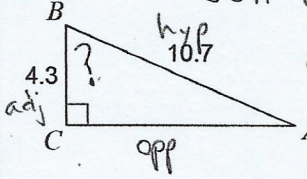
14.) Link has a jar of colored marbles: 5 blue, 7 yellow, and 9 green. Link selects one and it's yellow but doesn't put it back. What is the probability that Link will select another yellow marble?

Total marbles $=21$

$\hookrightarrow \frac{6}{20}=.3=$ 30%

15.) What is the measure of angle B to nearest tenth?

SOH-CAH-TOA



$\cos B=\frac{4.3}{10.7}$

$B=\cos^{-1}(\frac{4.3}{10.7})$

$B=66.3°$