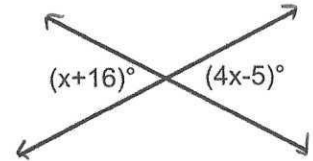8R Midterm Extra Review Part I
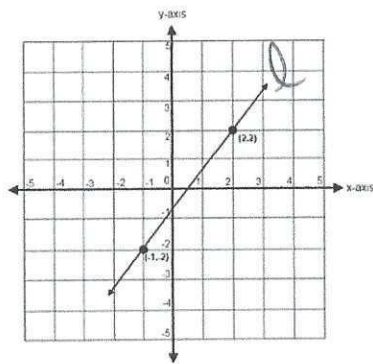
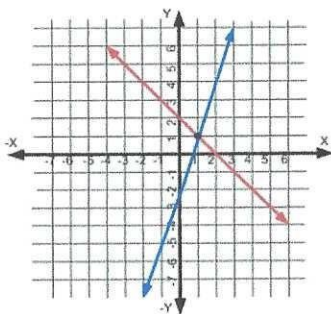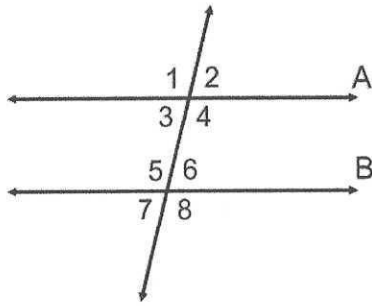|	
1) Which set of ordered pairs represents a function? a) (4,5), (2,3), (8,1), (4,6) b) (7,5), (-2,1), (8,5), (4,6) c) (-2,5), (-2,3), (8,1), (4,6) d) (9,2), (8,-3), (9,1), (7,-6)	2) What is the value of x in the diagram shown? $(x+16)°$ $(4x-5)°$
3) What is the rate of change of line shown in the accompanying diagram? 	4) Which of the following is a **rational** number? 1) π 2) $\sqrt{57}$ 3) $\dfrac{7}{8}$ 4) 9.7865201938472...
5) Which is the equation for the line that passes through the points (8,0) and (0,7)?	6) How many solutions does the equation $8x + 4 = 4(2x + 1)$ have?
7) What ordered pair is a solution to the system of equations shown below? 	8) Find the volume, in cubic inches, of a **cone** with a radius of 5 and a height of 10. Round to the nearest tenth inch. $V = \dfrac{1}{3}\pi r^2 h$

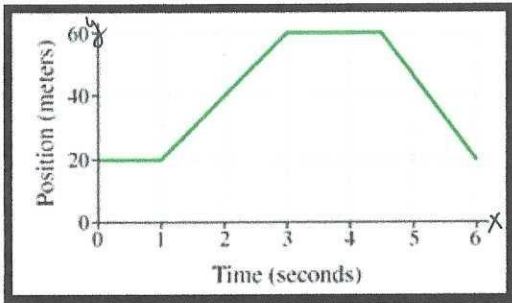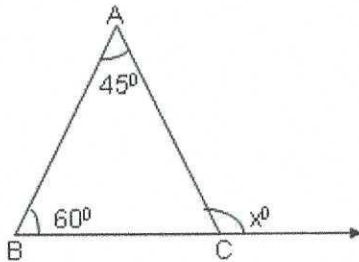|	
9) Evaluate: $x^7 \cdot x \cdot x^{-7}$	10) What is 0.000000523 expressed in scientific notation?
11) Lines A and B are parallel lines. The m < 3 is 80°. Find the m < 6.	12) Solve for x if $x^3 = 216$
13) What ordered pair is the solution of the system shown? $$3x + 2y = 1$$ $$5x - 2y = -9$$	14) The equation of a line is $y = -4x - 4$. Which point lies on the line? 1) (-2 , 4) 2) (0 , 4) 3) (-4 , 4) 4) (-4 , 0)
15) Solve for x: $$4.83 + 4.41x = 11.65 + x$$	16) What is the solution to the equation below? $$\frac{4}{5}(5x - 10) = 8$$

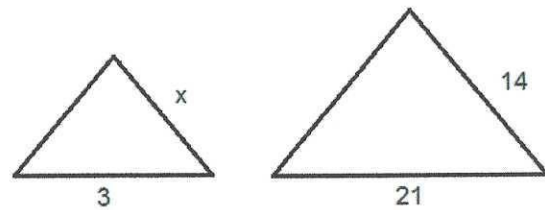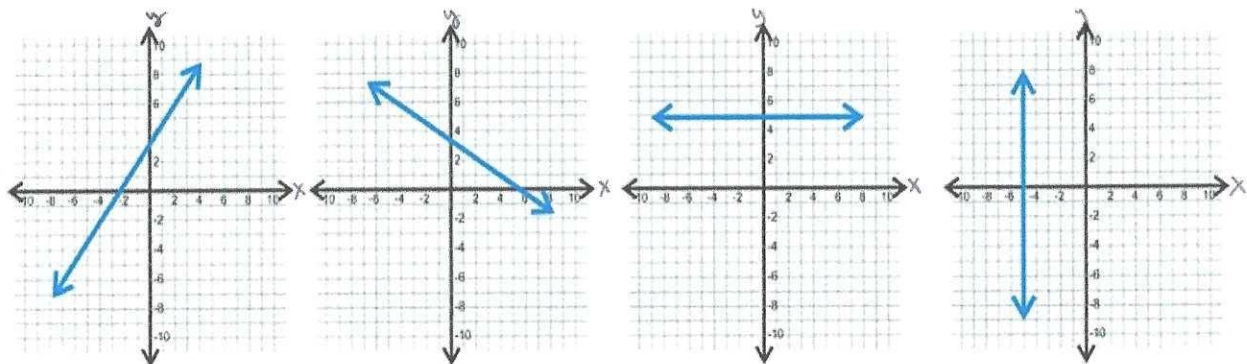| 17) In which interval is the graph linear and increasing?	18) If two sides of a right triangle measure 15 inches and 20 inches, what is the length of the hypotenuse?

19) Find the value of x in the diagram shown

20) Find the value of x if the two triangles below are similar.

21) Which of the following graphs shows a line with a zero slope?

8R Midterm Extra Review Part I

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1) Which set of ordered pairs represents a function? → x-values do Not repeat

a) (4,5), (2,3), (8,1), (4,6)
b) (7,5), (-2,1), (8,5), (4,6)
c) (-2,5), (-2,3), (8,1), (4,6)
d) (9,2), (8,-3), (9,1), (7,-6)

---

2) What is the value of x in the diagram shown?

Acute = Acute

$$x + 16 = 4x - 5$$
$$-x \quad\quad -x$$

$$\frac{16 = 3x - 5}{+5 \quad\quad +5}$$

$$\frac{21 = 3x}{3 \quad 3}$$

$$\boxed{x = 7}$$

A—(x+16)° (4x-5)°—A

vertical angles are = in measure

---

3) What is the rate of change of line shown in the accompanying diagram? →slope

$$m = \frac{rise}{run}$$

$$\boxed{m = \frac{4}{3}}$$

---

4) Which of the following is a rational number?

1) π
2) $\sqrt{57}$
3) $\frac{7}{8}$ → Fractions are always rational.
4) 9.7865201938472…

---

5) Which is the equation for the line that passes through the points (8,0) and (0,7)? →y-int

$$y = mx + b$$
$$m = -\frac{7}{8}$$
$$b = ?$$

$$\boxed{y = -\frac{7}{8}x + 7}$$

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$
$$m = \frac{7 - 0}{0 - 8}$$
$$m = \frac{7}{8}$$
$$m = -\frac{7}{8}$$

$x_1 y_1$ $x_2 y_2$

$$y = mx + b \quad (8,0)$$
$$0 = -\frac{7}{8}(8) + b \quad m = -\frac{7}{8}$$
$$0 = -7 + b$$
$$\frac{+7 \quad\quad +7}{7 = b}$$

---

6) How many solutions does the equation $8x + 4 = 4(2x + 1)$ have? Distribute 1st

$$8x + 4 = 8x + 4$$
$$\frac{-8x \quad\quad -8x}{4 = 4}$$

→ Must move the variable 1st

$$\boxed{\text{Infinitely many}}$$

---

7) What ordered pair is a solution to the system of equations shown below?

where the lines intersect (intersection point)

$$\boxed{(1,1)}$$

---

8) Find the volume, in cubic inches, of a cone with a radius of 5 and a height of 10. Round to the nearest tenth inch.

$$V = \frac{1}{3}\pi r^2 h$$

use π-button

$$V = \frac{1}{3}\pi r^2 h$$
$$V = \frac{1}{3} \cdot \pi \cdot (5)^2 \cdot 10$$
$$V = \frac{1}{3} \cdot \pi \cdot 25 \cdot 10$$
$$\boxed{V = 261.8 \text{ in}^3}$$

H

R

(A^b/c)

9) Evaluate: $x^7 \cdot x \cdot x^{-7}$

☆ Add the exponents

X^{7+1+-7}

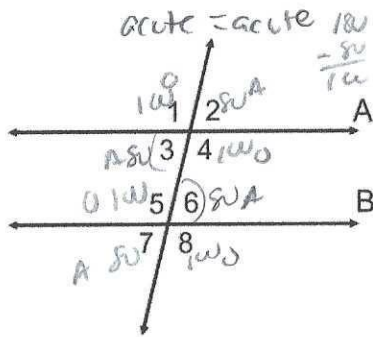☆ Keep base

$\boxed{X^1}$

10) What is 0.000000523 expressed in scientific notation?

$\boxed{5.23 \times 10^{-7}}$

→ Negative B/C it started as a # smaller than 1

Calc:
$\boxed{2nd}\ \boxed{DRG} \rightarrow \boxed{SCI}$

11) Lines A and B are parallel lines. The m < 3 is 80°. Find the m < 6.

* Alternate interior angles are = in measure

$\boxed{m \angle 6 = 80°}$

acute = acute 180
−80
100

1∖100 / 2∖80 A
3∖80 / 4∖100
5∖100 / 6∖80 A
7∖80 / 8∖100

A

B

12) Solve for x if $x^3 = 216$

$\sqrt[3]{x^3} = \sqrt[3]{216}$

$\boxed{X = 6}$

Calc: $\boxed{3}\ \boxed{2^{nd}}\ \boxed{\wedge}$

13) What ordered pair is the solution of the system shown?

Additive inverse

$3x + 2y = 1$
$+\ 5x - 2y = -9$

$\dfrac{8x}{8} = \dfrac{-8}{8}$

$x = -1$

$\boxed{(-1, 2)}$

$3x + 2y = 1$
$3(-1) + 2y = 1$
$-3 + 2y = 1$
$+3 \qquad +3$
$\dfrac{2y}{2} = \dfrac{4}{2}$
$y = 2$

14) The equation of a line is $y = -4x - 4$. Which point lies on the line?

1) $(-2, 4)$
2) $(0, 4)$
3) $(-4, 4)$
4) $(-4, 0)$

☆ guess + check

$(\underset{x}{-2}, \underset{y}{4})$

$y = -4x - 4$
$4 = -4(-2) - 4$
$4 = 8 - 4$
$4 = 4$ ✓

15) Solve for x:

$4.83 + 4.41x = 11.65 + 1x$

Dist

$\underline{\qquad -1x \qquad\qquad -1x \qquad}$

Combine $4.83 + 3.41x = 11.65$
$-4.83 \qquad\qquad\qquad -4.83$

Move $\overline{\qquad\qquad 3.41x = 6.82 \qquad}$

Solve $\dfrac{3.41x}{3.41} = \dfrac{6.82}{3.41}$

$\boxed{X = 2}$

16) What is the solution to the equation below?

$\dfrac{4}{5}(5x - 10) = 8$

(4)(5)

Dist $4x - 8 = 8$

Combine $\cancel{8} + 8$
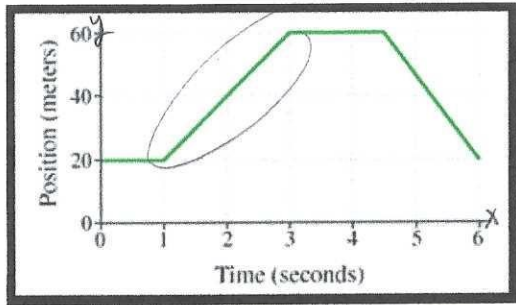
Move $\dfrac{4x}{4} = \dfrac{16}{4}$

Solve

$\boxed{X = 4}$

17) In which interval is the graph <u>linear</u> and increasing?

straight line

positive slope

Time (seconds)

$\boxed{\text{from } x=1 \text{ to } x=3}$

18) If two sides of a right triangle measure 15 inches and 20 inches, what is the length of the hypotenuse?
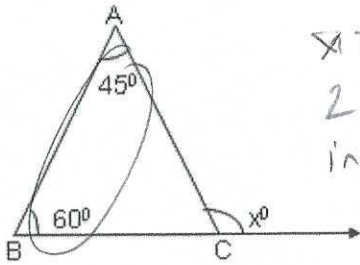
$a^2 + b^2 = c^2$

$15^2 + 20^2 = c^2$

$225 + 400 = c^2$

$\sqrt{625} = \sqrt{c^2}$

$\boxed{c = 25}$

C=k : $\boxed{2na}$ $\boxed{x^2}$

19) Find the value of x in the diagram shown

☆ The sum of the 2 non-adjacent interior ∡s is = to the exterior ∡
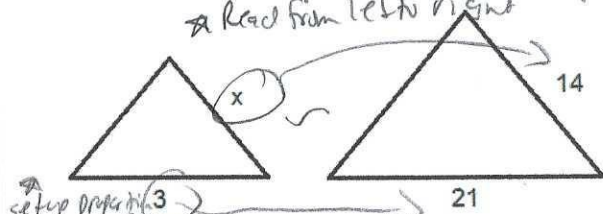
☆ Add the two angles up and set = to Q.

$X = 45 + 60$

$X = 105$

$\boxed{m∡x = 105°}$

20) Find the value of x if the two triangles below are similar.

☆ match up the corresponding sides
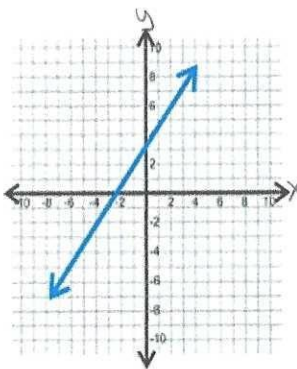☆ Corresponding sides are in proportion
☆ Read from left to right

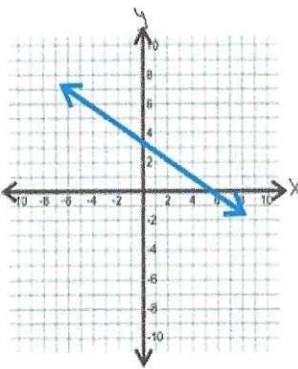set up proportion
☆ cross multiply

$\dfrac{x}{14} = \dfrac{3}{21}$

$\dfrac{21x}{21} = \dfrac{42}{21}$
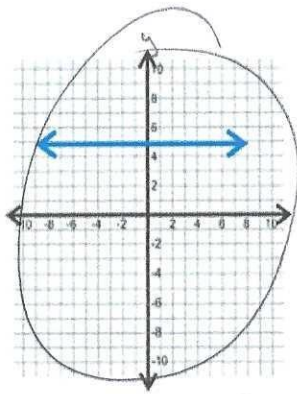
$\boxed{x = 2}$

21) Which of the following graphs shows a line with a zero slope?

pos.   Neg   zero   undefined