

## Test 8 section 2 (838)

- |      |                     |                |
|------|---------------------|----------------|
| 1) E | 9) $13/2$           | 6.5            |
| 2) E | 10) 10              |                |
| 3) B | 11) 45              |                |
| 4) B | 12) 105             |                |
| 5) D | 13) 12.5            | $25/2$         |
| 6) D | 14) $3/50$          | 0.06           |
| 7) C | 15) 192             |                |
| 8) A | 16) $8/7$           | 1.14           |
|      | 17) $0/1 < X < 3/8$ | $0 < X < .375$ |
|      | 18) 1350            |                |

$$1) \quad \frac{4.50}{3} = 1.50 \text{ each}$$

$$\frac{+50}{200} \times 5 = 10.00 \quad \textcircled{E}$$

2) look at answers

$\textcircled{E}$

3)

$$3 \text{ parts} \rightarrow \frac{6}{3} = 2$$

$$AB=4$$

$$BC=2$$

$\textcircled{B}$

4)  $|x| - |y| = 3 \Rightarrow$  diff (ignoring signs)  
 either B, A, C  
 but  $|x|$  is larger  $\Rightarrow (-4, -1)$

5)  $x < 20$  30%  
 $20 \leq x < 40$  20% } 50%  
 500  
 (5)(1000)

6)  $\frac{7}{3}$   $\frac{8}{3}$   $\frac{9}{3}$   $\frac{10}{3}$  ...  
1 2 0 1 ...  
0120  
1201  
2012  
[15, 16, 17, 18]  
[16, 17, 18, 19]  
D only possible answer

$$7) \quad y \sim \frac{1}{x} \Rightarrow y = \frac{k}{x}$$
$$15 = \frac{k}{5} \Rightarrow k = 75$$
$$y = \frac{75}{25} = 3$$

OR

$$y = \frac{k}{x} \Rightarrow yx = k$$
$$15 \cdot 5 = 75$$
$$25x = 75$$
$$x = 3$$

©

$$8) \quad \begin{array}{l} \underline{2x+z=2y} \\ \underline{2x+z=20-2y} \end{array} \quad \begin{array}{l} (2x+2y+z=20) \\ \leftarrow \quad \quad \quad \rightarrow \end{array}$$

$$\begin{array}{l} \text{So } 2y=20-2y \\ 4y=20 \\ y=5 \end{array}$$

OR guess:

$$\begin{array}{l} 2x+z=2y \\ 2x+z=2(5) \\ \underline{2x+z=10} \end{array}$$

$$\begin{array}{l} 2x+2y+z=20 \\ 2x+2(5)+z=20 \\ 2x+10+z=20 \\ \underline{2x+z=10} \end{array}$$

$$\begin{aligned} 9) \quad & 2(x-3) = 7 \\ & 2x - 6 = 7 \\ & 2x = 13 \\ & x = 6.5 \end{aligned}$$

$$10) \quad y - 4 = 3(x - 2) \quad P(4, y)$$

$$y - 4 = 3(4 - 2)$$

$$y - 4 = 6$$

$$y = 10$$

11)

$$A \quad \frac{20 \text{ miles}}{\text{gallon}}$$

$$\left(20 \frac{\text{mi}}{\cancel{\text{gal}}}\right) (x \cancel{\text{gal}}) = 60 \text{ mi}$$

$$B \quad \left(3 \cancel{\text{gal}}\right) \left(15 \frac{\text{mi}}{\cancel{\text{gal}}}\right) = 45 \text{ miles}$$

3 gallons



$$12) \quad 100 + 120 + 65 + y = 360$$

$$y = 75$$

$$x = 180 - 75 = 105^\circ$$

13)

$$20, 8, 14, 11, 12.5$$

$\frac{24}{2}$

$\frac{28}{2}$

$\frac{25}{2}$

14)

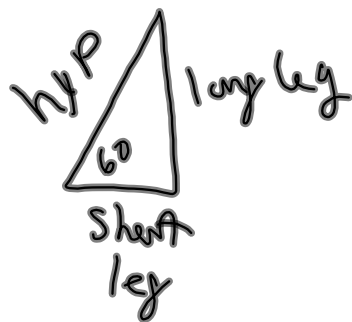
$$\begin{aligned} X &= \frac{1}{5} Y \\ Y &= \frac{3}{10} Z \\ Z &> 0 \end{aligned}$$

$X = F Z$

$$X = \frac{1}{5} \left( \frac{3}{10} Z \right)$$

$X = \frac{3}{50} Z$

15) need EB ←



$$\begin{aligned} \text{short leg} &= 8 \\ \therefore \text{long leg} &= (\sqrt{3})8 \end{aligned}$$

$$\begin{aligned} \text{Area} &= (8\sqrt{3})(8\sqrt{3}) \\ &= 64 \cdot \sqrt{3}\sqrt{3} \\ &= 64 \cdot 3 \\ &= 192 \end{aligned}$$

$$\begin{aligned} &(\sqrt{3})^2 \\ &= 3 \\ &8^2 \cdot 3 \\ &= 64 \cdot 3 \\ &= 192 \end{aligned}$$

the square root of a number is another number that when multiplied by itself gives you the original number.

$$\sqrt{9} = 3 \quad \text{because } 3 \cdot 3 = 9$$

$$\sqrt{7} \quad \sqrt{7} \cdot \sqrt{7} = 7$$

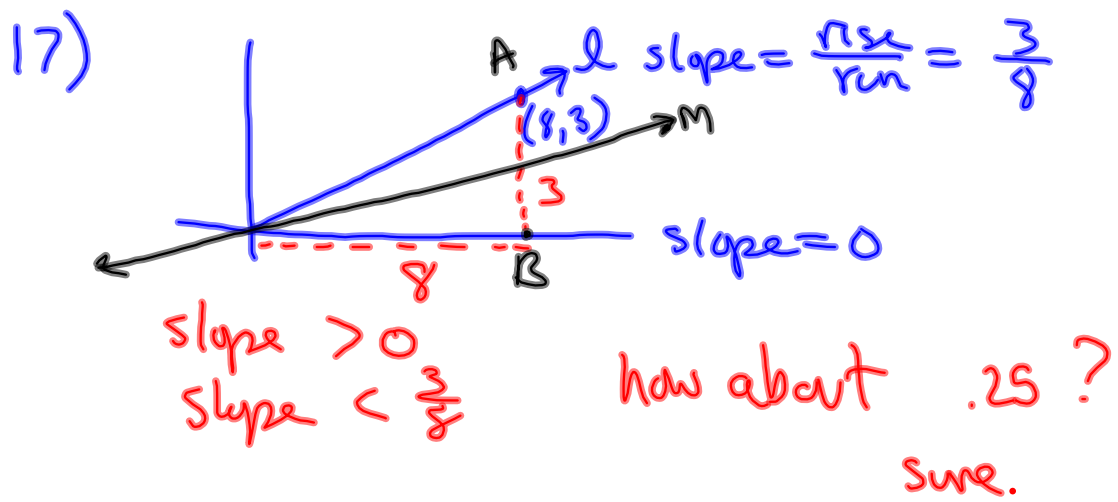
$$\sqrt{49} = 7 \quad \text{bc. } 7 * 7 = 49$$

16)

$$\frac{P}{C} = \frac{5}{2} \Rightarrow \frac{C}{\text{total}} = \frac{2}{7}$$

"reasoning"

$$\frac{C}{4} = \frac{2}{7}$$
$$8 = 7C$$
$$\frac{8}{7} = C$$



18)

1238    1351    1459    1552



↑    1351  
median

X must be less than 1351

1350

## Test 8 section 5 (855)

- |      |       |       |
|------|-------|-------|
| 1) B | 9) D  | 17) D |
| 2) E | 10) E | 18) A |
| 3) C | 11) B | 19) E |
| 4) D | 12) C | 20) E |
| 5) B | 13) C |       |
| 6) A | 14) D |       |
| 7) C | 15) A |       |
| 8) C | 16) A |       |

.



1) "by inspection"  $x = 39$  (B)

2)  $m + t = z$   
 $w + x = z$   
 $k + r + n + s = z$  ✓ (E)

3)  $\frac{120^\circ}{60^\circ} \Rightarrow 25 + x + 120 = 180$   
 $x = 35$  (C)

4) diff = 600  
save 15 each month

$$600 = 15x$$
$$\frac{600}{15} = x$$

$x = 40$  months

(D)

5) each side is 3x as long  
(equilateral)

$$P_{ABC} = 3(10)$$

Side  $\frac{3(10)}{3}$

(B)

$$6) \quad 1 \text{ yr sec} = 36000 \text{ each day} \\ (60 \cdot 60 \cdot 10)$$

$$\frac{360,000}{36,000} = 10 \text{ days} \quad \textcircled{A}$$

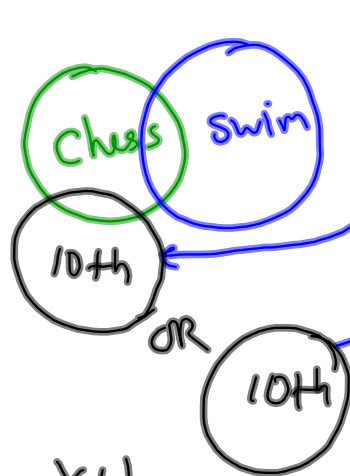
$$7) \quad \frac{x+3x}{2} = \frac{4x}{2} = 2x$$

$$2x = 12$$

$$x = 6$$

$$\textcircled{C}$$

8)



- A) Nope
- B) nope
- C) yes, because they swim
- d) nope - no values given
- e) " "

9)

$$\begin{aligned} 3x+n &= x+1 \\ 2x+n &= 1 \\ 2x &= 1-n \\ 2x-1 &= -n \\ -2x+1 &= n \end{aligned}$$

(D)

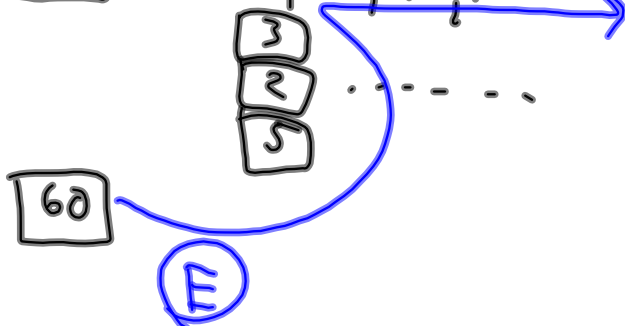
10)  $\boxed{k}$  = all multiples of  $k$   
ie  $k, 2k, 3k, 4k, \text{ etc}$

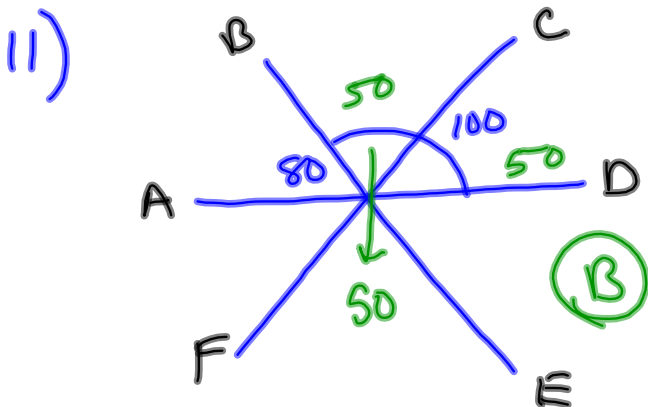
$$\boxed{2} = 2, 4, 6, 8 \dots$$

$$\boxed{3} = 3, 6, 9, 12 \dots$$

$$\boxed{5} = 5, 10, 15, 20 \dots$$

$$\boxed{30} = 30, 60, 90, 120 \dots$$





12)

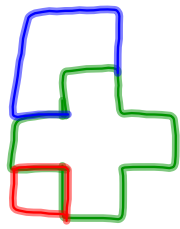
$$\sqrt{\frac{5k}{3}}$$

k needs a factor of 3 to cancel the denom. And a factor of 5 to make a perfect square.

or try each answer

$$3 \times 5 = 15 \quad \text{C}$$

13)



(C)

14)

21 22 ~~23~~ ~~24~~ ~~25~~ 26 ~~27~~ ~~28~~ ~~29~~  
3-7 2-11 p 3-8 5-5 2-13 3-9 2-14 p

(D)



$$15) \quad (7-x)^2 + (7+x)^2 = 100$$

$$(7-x)(7-x) = 49 - 14x + x^2$$

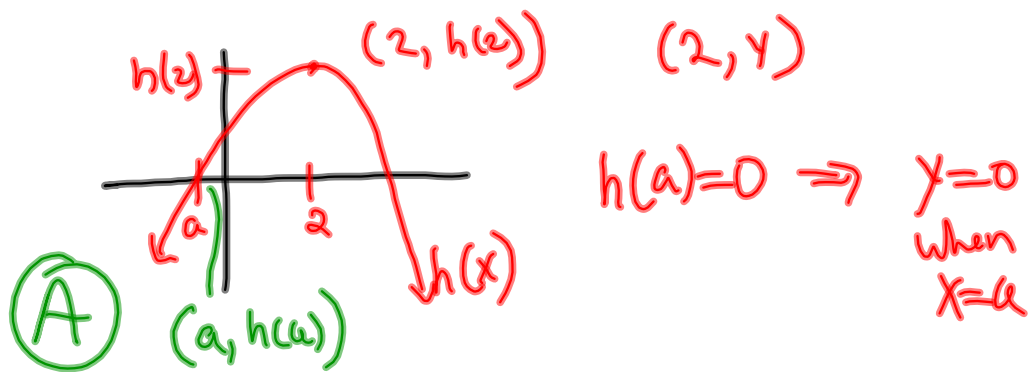
$$(7+x)(7+x) = \underline{49 + 14x + x^2}$$

$$2(49 + x^2) = 100$$

$$49 + x^2 \approx 50$$

(A)

16)



$$x^2 + hx + x + h$$

17) if  $k$  and  $h$  are constants and  $x^2 + kx + 7$  is equivalent to  $(x+1)(x+h)$ , what is the value of  $k$ ?

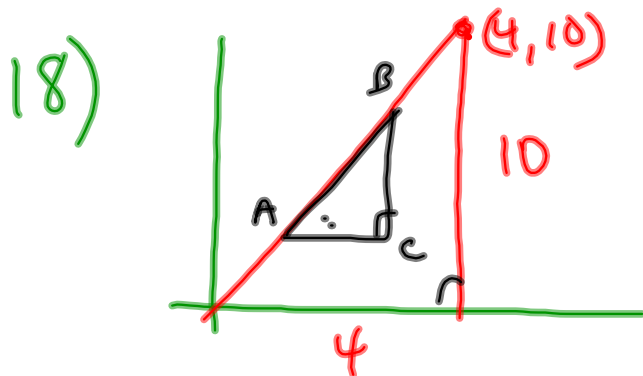
FOIL

$$(x+1)(x+h) \Rightarrow \begin{aligned} h \cdot 1 &= 7 \\ h &= 7 \end{aligned}$$

$$1 \cdot x + hx = kx$$

$$8x = kx$$

$$8 = k \quad \boxed{D}$$



Similar  $\Delta$ 's

$$\frac{BC}{AC} = \frac{10}{4} = \frac{5}{2}$$

draw  
extra  
stuff

A

B  $\Rightarrow$

$$\begin{array}{r} 2 + 5 = 7 \\ 4 + 25 = 49 \\ \hline \text{Nup!} \end{array}$$

19) Let the function defined by  $f(x) = 2x - 1$ .  
if  $(1/2)f(\sqrt{t}) = 4$ , what is the value of  $t$ ?

$$f(x) = 2x - 1$$

$$f(\sqrt{t}) = 2\sqrt{t} - 1$$

$$\frac{1}{2}f(\sqrt{t}) = \frac{1}{2}(2\sqrt{t} - 1)$$

$$= \frac{1}{2}2\sqrt{t} - \frac{1}{2}$$

$$\sqrt{t} - \frac{1}{2} = 4$$

$$f\left(\frac{9}{2}\right) = 2\left(\frac{9}{2}\right) - 1$$

$$\sqrt{t} = 4 + \frac{1}{2}$$

$$\sqrt{t} = \frac{9}{2}$$

$$t = \frac{81}{4}$$

$\boxed{E}$

20) If  $k$  is a positive integer, which of the following must represent an even integer that is twice the value of an odd integer?

$k$  is even or odd

$2k$  is even

$2k+1$  is odd

$2(2k+1) = 2$  times an odd int

$4k+2$   $\boxed{E}$

## Test 8 section 8 (867)

1) A

2) E

3) C

4) E

5) C

6) D

7) B

8) B

9) B

10) C

11) A

12) C

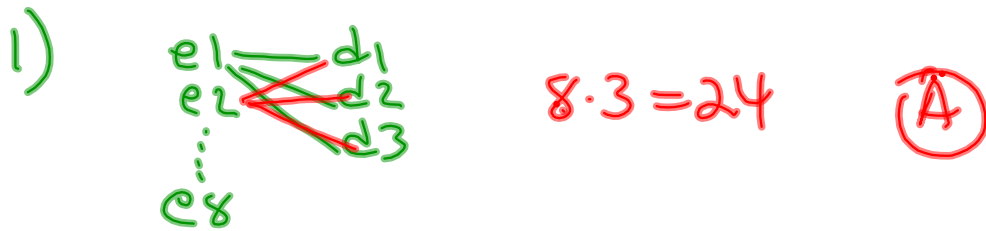
13) D

14) E

15) C

16) E

.



2)  $3x + 5 = x\left(\frac{1}{3}\right)$  (F)

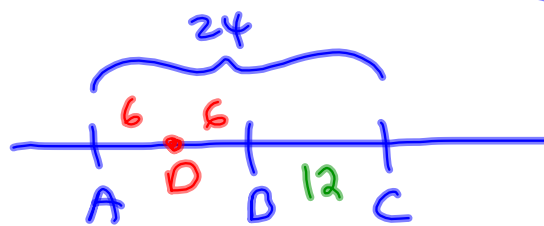
3)  $\frac{15}{90} = \frac{1}{6}$  (C)

4)  $\frac{x}{y} = \frac{1}{2}$   $\frac{1}{2}$   $\frac{2}{4}$   $\frac{3}{6}$  ... (F)



5) (C) duh least

6)



$$\overline{DC} = 18$$

7)

$$\frac{6}{10^n} + \frac{1}{10^n} = \frac{7}{10^n}$$

(B)

$$6 \times 10^{-n}$$

$$(6)(10^{-n})$$

$$8) \quad \frac{1}{4} 360 = 90^\circ \quad \frac{1}{5} 360 = 72^\circ$$
$$90 - 72 = 18^\circ \quad \textcircled{B}$$

9) When is  $y$  negative?

$$0 < x < 6 \quad \textcircled{B}$$

10)

top	$1 \times 1 \times 1 = 1$	$\textcircled{C}$
2nd	$2 \times 2 \times 1 = 4$	
	$3 \times 3 \times 1 = 9$	
	$4 \times 4 \times 1 = 16$	
	<hr/>	
	30	

$$\begin{array}{l}
 11) \quad 4(2^x) = 2^y \\
 \quad \quad 2^2 2^x = 2^y \\
 \quad \quad 2^{x+2} = 2^y
 \end{array}
 \left. \vphantom{\begin{array}{l} 11) \\ 2^2 2^x \\ 2^{x+2} \end{array}} \right\}
 \begin{array}{l}
 x+2=y \\
 x=y-2
 \end{array}
 \quad \textcircled{A}$$

Side bar

$$(x^3)^4 = x^{12}$$

$$(xxx)(xxx)(xxx)(xxx)$$

$$x^3 x^4 = x^7$$

$$(xxx)(xxxx)$$

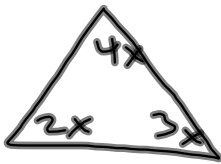
$x^3 + x^4$  not like terms

$$x^3 + x^3 = 2x^3$$

side bar cont.

exponentiation ↷  
multiplication ↷  
↷ addition ↷  
↷

12)



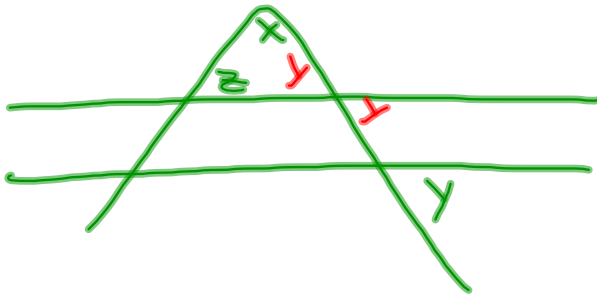
$$\begin{aligned}2x + 3x + 4x &= 180 \\ 9x &= 180 \\ x &= 20\end{aligned}$$



13)  $50 + 30(n-1)$   
 $C(n) = .50 + .30(n-1)$

$n = \# \text{ minutes}$   
 $\textcircled{D}$

14)



$$x + y + z = 180$$

$$z = 180 - x - y$$

$\textcircled{E}$

$$15) \frac{n}{(n-1)} \cdot \frac{1}{\cancel{n}} \cdot \frac{\cancel{n}}{(n+1)} = \frac{5}{k}$$

$$\frac{n}{n^2-1} = \frac{5}{k}$$

$$\frac{n^2-1}{n} = \frac{k}{5} \quad \text{let } n=5$$

$$\frac{25-1}{5} = \frac{k}{5}$$

$$k=24 \quad \text{(C)}$$

$(n-1)(n+1)$   
 $= n^2 - \cancel{n} + n - 1$

16)  $\left. \begin{array}{l} m \text{ people} \\ y \text{ dollars} \\ p \text{ deadbeats} \end{array} \right\} \frac{y}{m} = \$ \text{ to contribute}$   
 $m-p$  contributors

$\frac{y}{m-p}$  dollars to contribute

$$\frac{y}{m-p} - \frac{y}{m} = \frac{ym - y(m-p)}{m(m-p)}$$

$$\frac{ym}{m(m-p)} - \frac{y(m-p)}{m(m-p)} = \frac{\cancel{ym} - \cancel{ym} + yp}{m(m-p)}$$

(E)