Test 1 Section 3 (395)

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

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1) $2x+3=9$ (x2)

$4x+6=18$

$-9 \quad -9$

$4x-3=9$

B

$2x+3=9$

$2x=6$

$x=3$

$4(3)-3$

$=12-3$

$=9$

2) $8(150)=1200$

$8(200)=1600$

D

3) A duh?

4) (D) dh?

5) $\frac{x+y}{2}=5 \Rightarrow x+y=10$

$\frac{x+y+z}{3}=8 = x+y+z=24$

$10+z=24$

$z=14$ (B)

6) $25-x^2$ (E)

7) $rstv = 1$ $stuv = 0$

none of these are zero

one of two must $= 0$

so $u = 0$ (D)

8) 1) $\frac{1}{6}36 = 6$

2) $\frac{1}{4}36 = 9$

3) $\frac{1}{3}36 = 12$

4) $36 - 12 - 9 - 6$

9 (C)

9) $2^{2x} = 8^{x-1}$ $2^{2x} = (2^3)^{x-1}$ $2^{2x} = 2^{3x-3}$

$2x = 3x - 3$

$-x = -3$

$x = 3$ (B)

note = plug in solutions

10) $3x - 4 = 2 + x$

$2x = 6$

$x = 3$ (F)

11) $2\pi r = 36\pi$

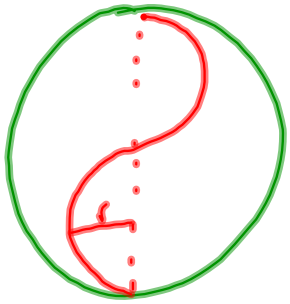
$r = 18$ bg circle

$r = 9$ (small semi-circles)

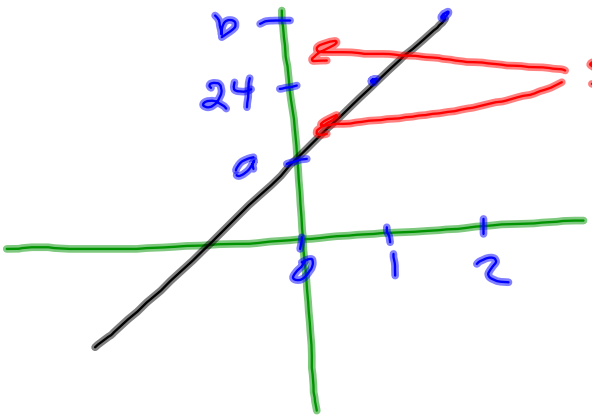
$2\pi(9) =$ circ of small circle

$18\pi =$ path length

C



12)



same length

$24 - x = a$

$24 + x = b$

$48 = a + b$

(C)

13) term 1 = 3

term 2 = 5

55th term

1 2 3 4 | 5 6 7 8 |

52 | 53 54 (55)

3rd term -5

3, 5, -5, -3, 3, 5, -5, -3, 3

3, -5, 3, -5, 3

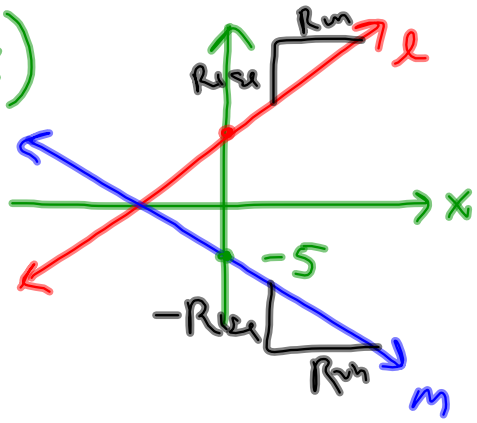
1 3 5 7 9

(A)

6 div by 2 rmt 4

54 div by 2 rmt 4

14)



$y = 2x + 5$

$b = -5$

$m = -2$

$y = -2x - 5$ (A)

point-slope form of line

$P(x_1, y_1)$ m

$$y - y_1 = m(x - x_1)$$

15)

$45 + x\%45 = 60$

$x\%45 = 15$

$x\% = .3\overline{3}$

$33\frac{1}{3}\%$

(C)

$\frac{15}{45} = .33$

$x\%45 = 60$

$x\% = \frac{4}{3}$

$x = 1.33$

133%

16) $V = A_B h = \pi x^2 2x = 2\pi x^3$

A → $\pi(2x)^2 x$ B → $\pi(2\pi x)^2 x$

C → $(2x)^3$ D → $(2\pi x)^3$

F → $x(2x)(\pi x) = 2\pi x^3$ (E)

17) $a+2(x+1)=5$

$2(x+1)=5-a$

$x+1=\frac{5-a}{2}$

(B)

$3+2y=6$

$2y=6-3$

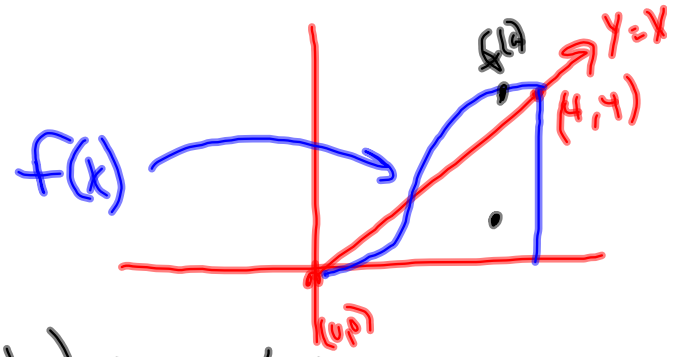
$y=\frac{6-3}{2}$

18) I ✓

II x (look at $y=x$)

III ✓

(D)



(a,b) on line

$f(a)=b$

(a,b) in shaded area

19) $|n-12|$ = difference between n and 12 and that must be $< \frac{1}{8}$ (C)

20) sum = 0

$-25, -24, -23, \ldots 0 \ldots 23, 24, 25 + 26 = 26$

(E)

Test 1 Section 6 (407)

1) E
2) A
3) D
4) A
5) A
6) D
7) D
8) B
9) 3
10) 450
11) 52, 78, 104
12) 202
13) 3
14) 24
15) 40
16) 1.2, 6/5
17) 1
18) 18

Jul 31-2:38 PM

1) $x + \frac{2}{x} = 5 + \frac{2}{5} = \frac{27}{5}$

$x^2 + 2 = \frac{27}{5}x$

$5x^2 + 10 = 27x$

$5x^2 - 27x + 10 = 0$

$(5x - 2)(x - 5) = 0$

$5x - 2 = 0$ $\quad x - 5 = 0$

$x = \frac{2}{5}$ $\quad x = 5$

$(5x - \frac{2}{1})(x - \frac{5}{1})$

E

2) $3^2+2^2=y^2$

$9+4=y^2$

$y=\sqrt{13}$

(A)

3) (D)

$18\div 2=9$

$18\div 6=3$

$18\div 4=$ ☹

4) $r=4$ $A=\pi(4)^2=16\pi$ (A)

5) 36 poss functions

1st spin	pss > 1
1	0
2	1
3	2
4	3
5	4
6	5
	15

$Prob = \frac{15}{36}$

(A)

6) (D) $w \sim x \Rightarrow w = kx \Rightarrow \frac{w}{x} = k$ $\quad k = \frac{1}{3}$ $\quad w = \frac{1}{3}x$

7) $\left(\frac{2}{3}k\right) n \text{ days} = 1000$

$\frac{2}{3}kn = 1000$

$kn = 1000\left(\frac{3}{2}\right) = 1500$

$n = \frac{1500}{k} \text{ days}$ (D)

8) must be (−) and $< |Q|$ ∴ B (B)

9) $\left.\begin{array}{l} 5y+2x=23 \\ x=y+1 \end{array}\right\}$ $5y+2(y+1)=23$

$5y+2y+2=23$

$7y=21$

$y=3$

10) $300+.50(300)=300+150=450$

11) $\triangle$'s are similar so ratio of sides is same

		perimeter
3:4:6	$\Rightarrow$ 12:16:24	52
	$\Rightarrow$ 18:24:36	78
	$\Rightarrow$ 24:32:48	104

12) $(x-4)+(x-3)+(x-2)+(x-1)+(x)=1000$

$5x-10=1000$

$5x=1010$

$x=202$

13) $h(x) = g(2x) + 2$

$h(1) = g(2) + 2 = 1 + 2 = 3$

14)

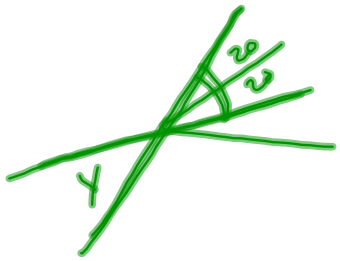
1	2	3	4
~~A~~	~~AB~~	~~ABC~~	ABCD
	BA	ACB	
		BAC	
$1! = 1$	$2! = 2$	BCA	$4! = 24$
		CAB	
		CBA	
		$3! = 6$	

15) equilateral = equiangular

so $3x = \frac{180}{3} = 60$

$x = 20$ ∴ $2x = y$

$y = 40^\circ$



16) $a \triangle b = a + 3b$

$a \square b = a + 4b$

$4 \triangle (5y) = (5y) \square 4$

$4 + 3(5y) = 5y + 4(4)$

$4 + 15y = 5y + 16$

$10y = 12$

$y = \frac{6}{5}$

17) $x = y^2 - 4$

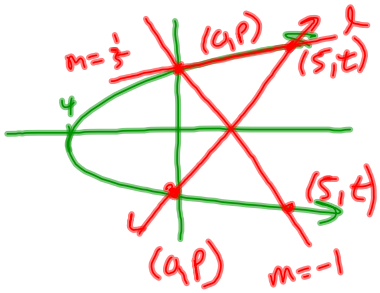
$(0,p) \Rightarrow 0 = p^2 - 4$

$p = \pm 2$

$(5,t) \Rightarrow 5 = t^2 - 4$

$t^2 = 9$

$t = \pm 3$



$m_l = \frac{t-p}{5} =$

$t = 3 \quad p = -2$

$= \frac{t-p}{5} = \frac{3-(-2)}{5} = \frac{5}{5} = 1$

18) $d = 45\,t_m$ $\quad d = r \cdot t$

$d = 30\,t_h$

$t_m + t_h = 1 \Rightarrow t_m = (1 - t_h)$

$45\,t_m = 30\,t_h$

$45(1 - t_h) = 30\,t_h$

$45 - 45t_h = 30t_h$

$45 = 75t_h$

$t_h = \frac{3}{5}$

$t_m = 1 - \frac{3}{5} = \frac{2}{5}$

$d = 45\left(\frac{2}{5}\right)$

$d = 18$ miles

Test 1 section 9 (423)

1) B
2) B
3) C
4) C
5) D
6) A
7) E
8) D
9) D
10) B
11) B
12) B
13) C
14) E
15) E
16) D

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1) $5t = 45$ $t = 9$ $tk = 1$ $9k = 1$ $k = \frac{1}{9}$ (B)

2) $3\frac{1}{2}$ inches x 2 turns/inch

$(\frac{7}{2})(2) = 7$ turns (B)

3) $\frac{x}{y} = \frac{2}{3}$ $\frac{3x}{y} = \frac{6}{3}$ $\frac{3x}{2y} = \frac{6}{6} = 1$ (C)

4) $\angle ROS = 20^\circ$ so $y = 160^\circ$

$x = 70^\circ$

$y - x = 90^\circ$ (C)

5) $\frac{3}{2} + \frac{1}{4} + \frac{3}{2} + 1 + \frac{3}{2} + \frac{1}{4} + \frac{3}{2}$

$\frac{12}{2} + 1 + \frac{2}{4} = 7\frac{1}{2}$

4:30pm − 7.5 hrs

= 9am (D)

6) (A)

	2x-5	x+1	3x-8
5a	5	6	7
11e	17	12	25

7) $P(n) = 0.75n - 50 = 100$

$.75n = 150$

$n = 200$

E

8) $x^2 + y^2 = 73$

$xy = 24$

$(x+y)^2 = x^2 + 2xy + y^2$

$= x^2 + y^2 + 2xy$

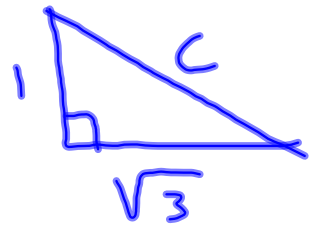
$= 73 + 2(24)$

$= 121$

D

(9) $\triangle ABD$ is isosceles 2 = angles

so $\overline{BD} = 1$



$1^2 + \sqrt{3}^2 = c^2$

$1 + 3 = c^2$

$4 = c^2$

$c = 2$

this is a 30-60-90 $\triangle$ so z is opposite the short side $\therefore z = 30^\circ$

(D)

10) $.30 \cdot .40 \cdot \cancel{x} = .20 \cdot w \cdot \cancel{x}$

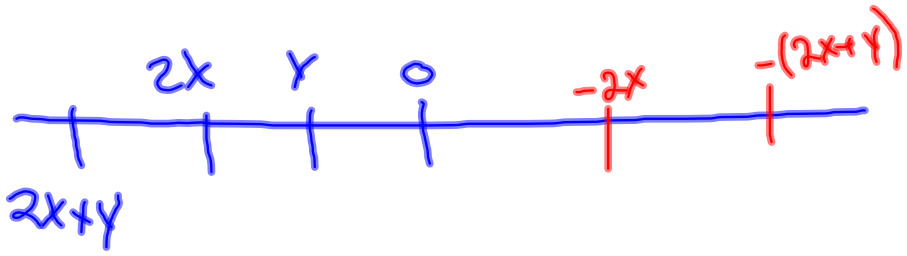
$.12 = .2w$

$.6 = w$ 60% (B)

11) $2x + 2x + 4x + 8x + 16x + 32x$

$= 64x$ $\frac{1}{64}$ (B)

12) $2x < y < 0$ (B)



13) n, $4n$, $n+3$

$6n+3$ total

$\frac{6n+3}{3} = 2n+1$

(C)

14) $\sqrt{a+b} = \frac{1}{\sqrt{a-b}}$

$\sqrt{a-b}\sqrt{a+b} = 1$

$\sqrt{(a^2-b^2)} = 1$

$a^2-b^2=1$

$b=0$ X

$a+b=1$ X

$a-b=1$ X

$a^2+b^2=1$

$a^2-b^2=1$ ✓

$a+b=1$

$a-b=1$

$2a=2$

$a=1$

(E)

15) if $\overline{PQ} = 6$ the x-coord of $Q = 3$

$y = x^2$ $y = a - x^2$

$y = y$ $x^2 = a - x^2$ when $x = 3$

$9 = a - 9$

$a = 18$

E

16) $X = \{1,3,7,2,5,9\}$

$Y = \{1,2,6,8,4,7\}$

$Z = \{3,5,8,9,6,4\}$

$X \cap Y = \{1,2,7\}$

$K = 3$

$x = 6$ $x-K$

$y = 6$ $y-K$

$x + y - 2k$

(D)