

# Post test - Commonly Missed Questions

Note Title

5/7/2008

#3 A line passes through (2,5) and (6,11). Name another point on the line.

a) ~~(-1,3)~~

d) ~~(-1,0)~~

b) ~~(-3,-2)~~

e) None of the above

c) ~~(2,0)~~

Find the slope of the line connecting

(2,5) and (6,11) :  $m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{11 - 5}{6 - 2}$

(-1,3) (2,5)  $m = \frac{5-3}{2-(-1)} = \frac{2}{3}$

$= \frac{6}{4}$

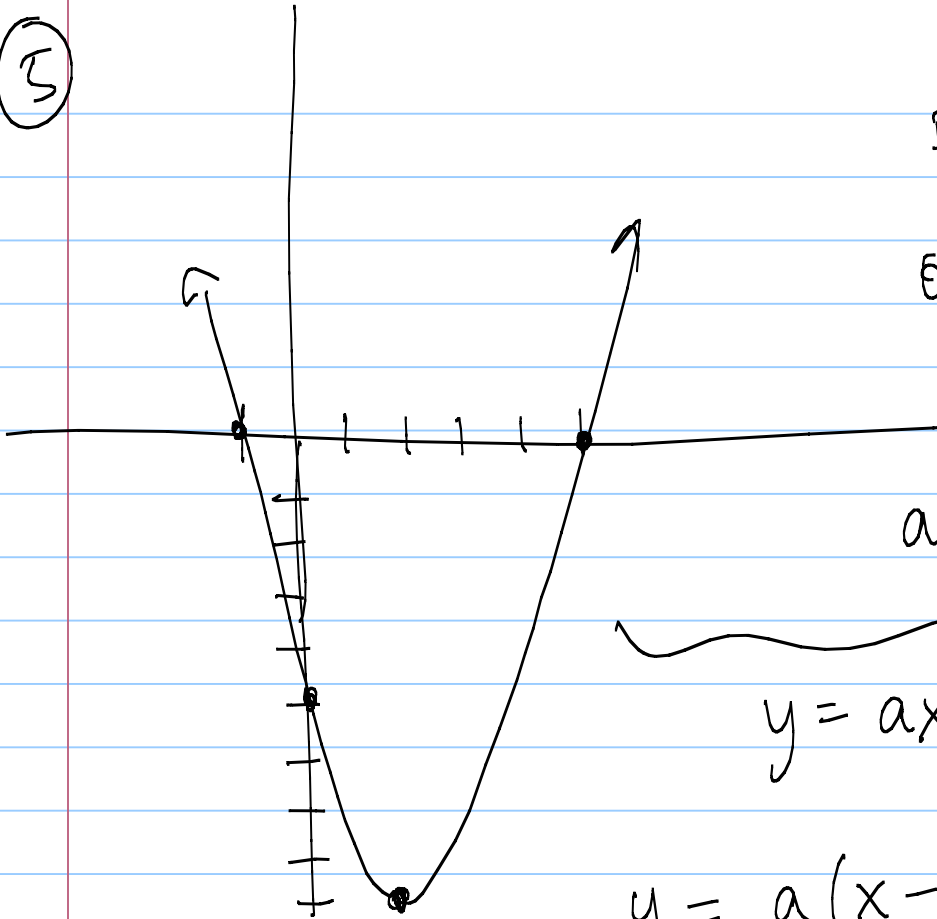
(-3,-2) (2,5)  $m = \frac{5+2}{2+3} = \frac{7}{5}$

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

(2,0) (2,5)  $m = \frac{5-0}{2-2}$  Undefined!

(-1,0) (2,5)  $m = \frac{5-0}{2+1} = \frac{5}{3}$

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Find equation  
of the parabola  
with vertex  $(2, -9)$

and  $(5, 0)$

$$y = ax^2 + bx + c$$

$$y = a(x-h)^2 + k$$

$$y = a(x-2)^2 - 9$$

$$0 = a(5-2)^2 - 9$$

$$0 = a(3)^2 - 9$$

$$0 = 9a - 9$$

$$9 = 9a \quad a = 1$$

Plug in  $a = 1$  into the blue part.

$$y = 1(x-2)^2 - 9$$

Option

(B)

$$y = (x-2)^2 - 9$$
$$= x^2 - 4x + 4 - 9$$

$$y = x^2 - 4x - 5$$

Answer

#9 If  $\log(a) = 2.3$  and  $\log(b) = 1.4$ ,  
what is  $\log\left(\frac{a}{b}\right)$ ?

a) .2156

b) 1.64

c) .9

d) .3936

e) None  
of the  
above

$$\log\left(\frac{a}{b}\right) = \log a - \log b$$
$$= 2.3 - 1.4$$
$$= .9$$

#11

Solve the inequality  $|3x+4| < 8$

$$-8 < 3x+4 < 8$$

$$\begin{array}{r} -8 < 3x+4 \\ -4 \quad \quad -4 \\ \hline \end{array}$$

and  
 $\rightarrow$

$$\begin{array}{r} 3x+4 < 8 \\ -4 \quad -4 \\ \hline \end{array}$$

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

and

$$\frac{3x}{3} < \frac{4}{3}$$

$$-4 < x$$

and

$$x < \frac{4}{3}$$

$$\boxed{-4 < x < \frac{4}{3}}$$

a)  $x < \frac{4}{3}$

e) None.

b)  $x < \frac{3}{4}$

c)  $-4 < x < \frac{3}{4}$

d)  $-4 < x < \frac{4}{3}$

(12) Find all real & complex solutions to  $x^3 + 4x^2 + 6x + 4 = 0$  given that one solution is  $x = -2$ .

$$\begin{array}{r} -2 \overline{) 1 \quad 4 \quad 6 \quad 4} \\ \quad \downarrow \quad -2 \quad -4 \quad -4 \\ \hline \quad 1 \quad 2 \quad 2 \quad 0 \end{array}$$

$x^2 + 2x + 2$  is another factor of  $x^3 + 4x^2 + 6x + 4$ .

$$(x+2)(x^2+2x+2) = 0 \quad \begin{array}{l} x+2=0 \\ \text{or} \end{array}$$

Use the quad. formula  $\rightarrow x^2 + 2x + 2 = 0$

$$\begin{array}{l} a=1 \\ b=2 \\ c=2 \end{array} \quad \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$\frac{-2 \pm \sqrt{4 - 4(1)(2)}}{2(1)}$$

$$= \frac{-2 \pm \sqrt{4 - 8}}{2}$$

$$= \frac{-2 \pm \sqrt{-4}}{2} = \frac{-2 \pm 2i}{2}$$

Choice b was correct.

$$= \frac{-2}{2} \pm \frac{2i}{2}$$

$$= \underline{\underline{-1 \pm i}}$$

the other 2

solutions

13) What is a polynomial with a single root at  $x=3$  and a double root at  $x=-2$ ?

a)  $x^3 + x^2 - 8x - 12$

d) All the above

b)  $-2x^3 - 2x^2 + 16x + 24$

e) None of the above.

c)  $3x^3 + 3x^2 - 24x - 36$

$$\frac{(x-3)(x+2)^2}{(x-3)(x^2+4x+4)}$$

	$x^2$	$4x$	$4$
$x$	$x^3$	$4x^2$	$4x$
$-3$	$-3x^2$	$-12x$	$-12$

$$x^3 + x^2 - 8x - 12$$

~~#10~~ An initial investment of \$40,000 is compounded annually at an 8% rate of return. About how long will it take for the investment to double?

- a) About 6 yrs      e) More than 20 yrs
- b) About 9 yrs**
- c) " 12 yrs
- d) " 15 yrs

Rule of 72 ☺