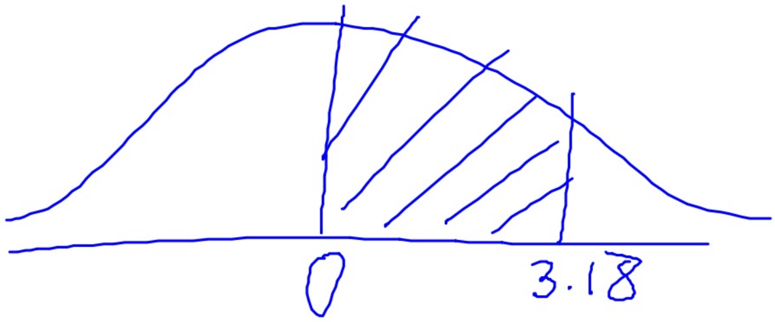
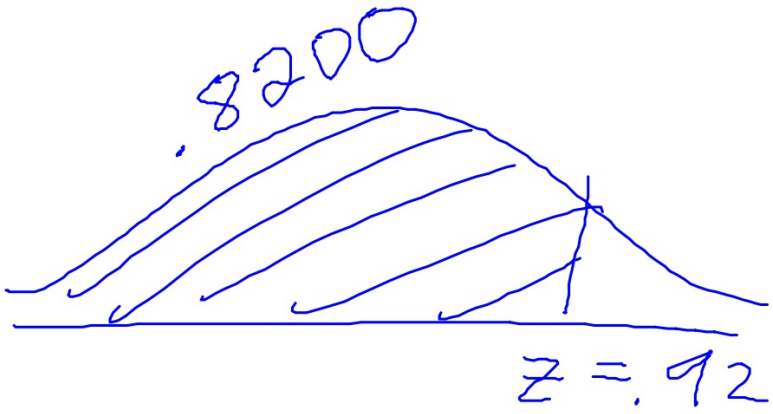


$$
\begin{array}{r}
.9993 \\
-\ .5000 \\
\hline
.4993
\end{array}
$$


.8200
Z = .92

19.) Stats

$\mu = 63$

$\sigma = 7$

$x = 73$

$Z = \frac{73-63}{7}$

$Z = 1.43$

Bio

$\mu = 23$

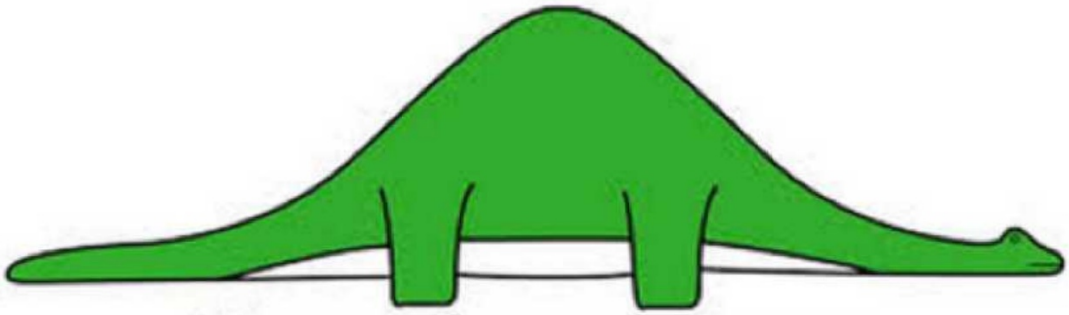
$\sigma = 3.9$

$x = 20$

$Z = \frac{20-23}{3.9}$

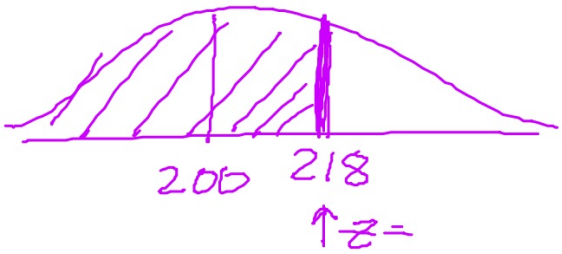
$Z = .77$

Z Scores - Word Problems



Ex 1: Scores on a test are normally distributed with a mean of 200 and a standard deviation of 12. Find each probability.

a) A randomly selected student scored less than 218



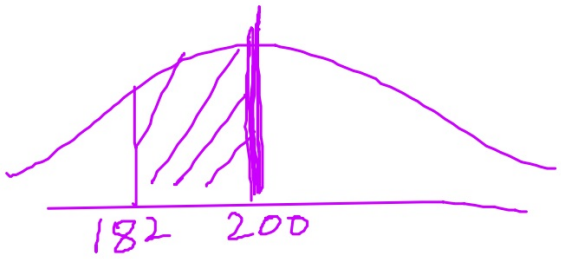
Your work must include a bell curve sketch and the z-score(s).

$P(X < 218) = .9332$

$$z = \frac{x - \mu}{\sigma} = \frac{218 - 200}{12} = 1.5$$

Ex 1: Scores on a test are normally distributed with a mean of 200 and a standard deviation of 12. Find each probability.

b) A randomly selected student scored between 182 and 200

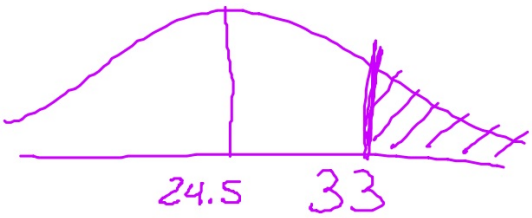


$$z = \frac{182 - 200}{12} = -1.5$$

$$P(182 < x < 200) = .4332$$

Ex 2: Healthy 10 week old kittens have an average weight of 24.5 oz with a standard deviation of 5.25. The distribution is approximately normal.

a) What percent of kittens weight more than 33 oz?



$P(X > 33) = .0526$

5.26%

$$z = \frac{33 - 24.5}{5.25} = 1.62$$

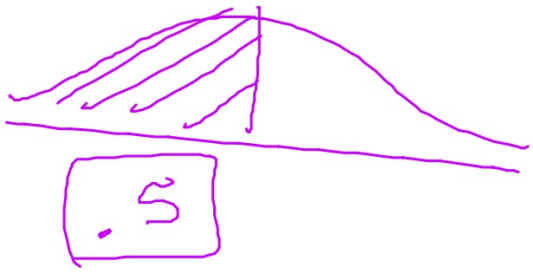
Ex 2: Healthy 10 week old kittens have an average weight of 24.5 oz with a standard deviation of 5.25. The distribution is approximately normal.

b) If 50 healthy kittens are randomly selected, how many will weigh more than 33 oz? Round to the nearest whole number.

.0526 × 50

≈ 3

Ex 3: If x is a normally distributed random variable with mean μ and standard deviation σ, then what is the probability that $x < \mu$?



Ex 4: If μ =65 and P(x>70)=0.31, what is σ ?

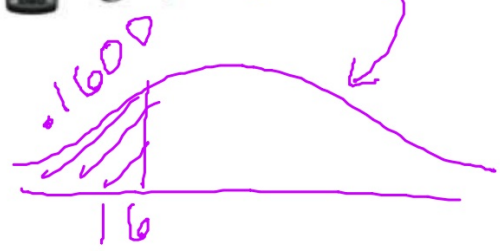
$z = ?$

$z = 0.5$

$.5 = \frac{70-65}{\sigma}$

$10 = \sigma$

Ex 5: If P(x<16)=0.16 and P(x>26)=0.07, what are μ and σ ?



$$-.99 = \frac{16-\mu}{\sigma}$$

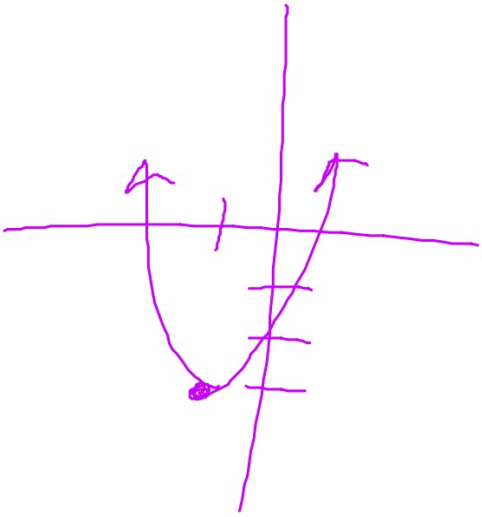
$$1.48 = \frac{26-\mu}{\sigma}$$

EOC Review

1.

Graph $y = 2(x + 1)^2 - 3$. Identify the vertex.

$(-1, -3)$



EOC Review

2.

Let $f(x) = 3x^2$ and $g(x) = x^{3/2}$. Find $\frac{f(x)}{g(x)}$, and state the domain of $\frac{f(x)}{g(x)}$.

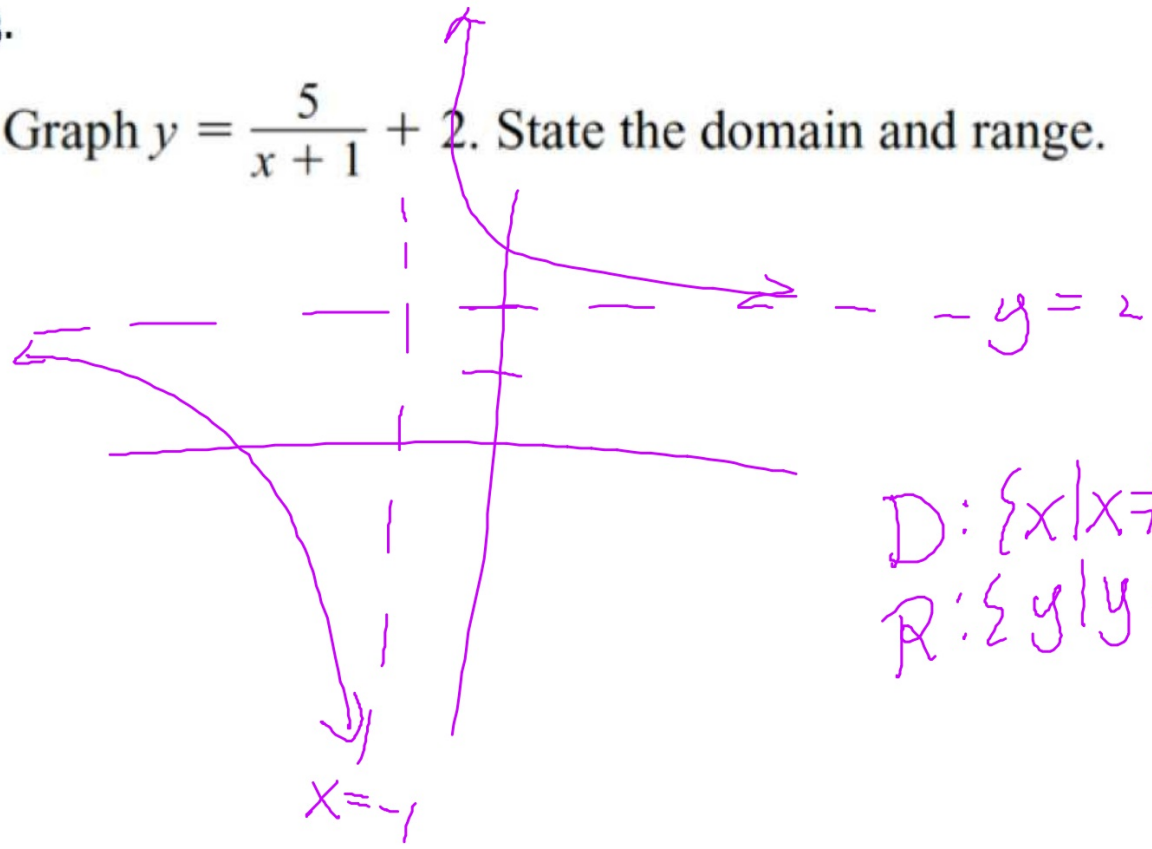
$$\frac{3x^2}{x^{3/2}} = 3x^{1/2} = 3\sqrt{x}$$

$x > 0$

EOC Review

3.

Graph $y = \frac{5}{x+1} + 2$. State the domain and range.



D: $\{x | x \neq -1\}$

R: $\{y | y \neq 2\}$

EOC Review

4.

Simplify the complex fraction $\dfrac{2+\frac{5}{x}+\frac{3}{x^2}}{\frac{2}{x^2}+\frac{5}{x}+3}$

$\left(2+\frac{5}{x}+\frac{3}{x^2}\right)x^2$ over $\left(\frac{2}{x^2}+\frac{5}{x}+3\right)x^2$

$\dfrac{2x^2+5x+3}{3x^2+5x+2} = \dfrac{2x+3}{3x+2}$

$(2x+3)(x+1)$

EOC Review

5.

Determine whether the function $g(x) = 2x^3 - 3x$ is *even*, *odd*, or *neither*.

$$g(-x) = 2(-x)^3 - 3(-x)$$

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

odd

$$= -(2x^3 - 3x)$$

EOC Review

$S_n = \frac{n}{2}(a_1 + a_n)$

6.

Find the sum of the series $\sum_{n=40}^{43} (8 - n)$.

$(8-40) + (8-41) + (8-42) + (8-43)$

-134

EOC Review

7.

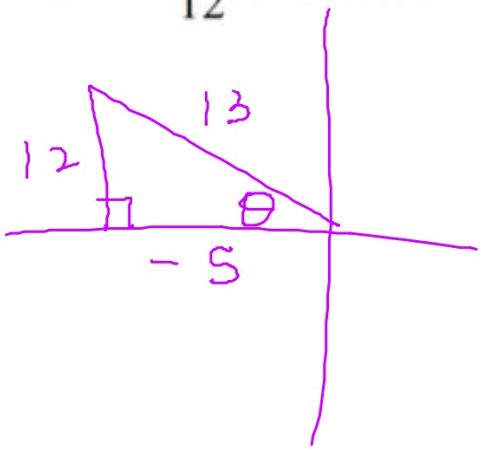
Evaluate the function cos (–150°) without using calculator.

$$-\frac{\sqrt{3}}{2}$$

EOC Review

8.

Find the values of the other 5 trigonometric functions of x if $\tan x = -\frac{5}{12}$ and $\cos x < 0$.

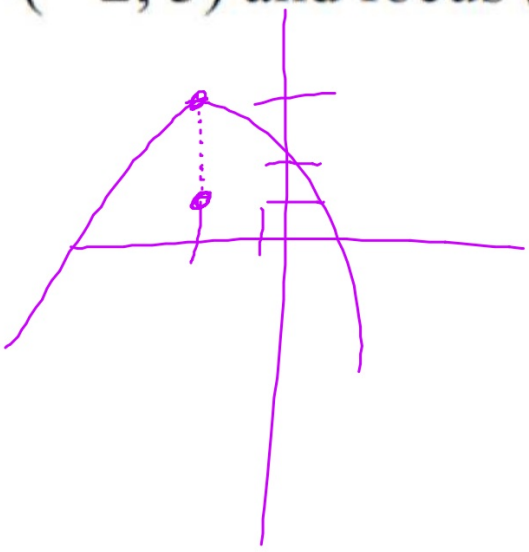


$\sin\theta = \frac{12}{13}$

EOC Review

9.

Write the equation of the parabola with vertex $(-2, 3)$ and focus $(-2, 1)$.



$$(x+2)^2 = -8(y-3)$$

EOC Review

10.

Write the product $(4 - 7i)(-2 + 3i)$ as a complex number in standard form.

13+26i