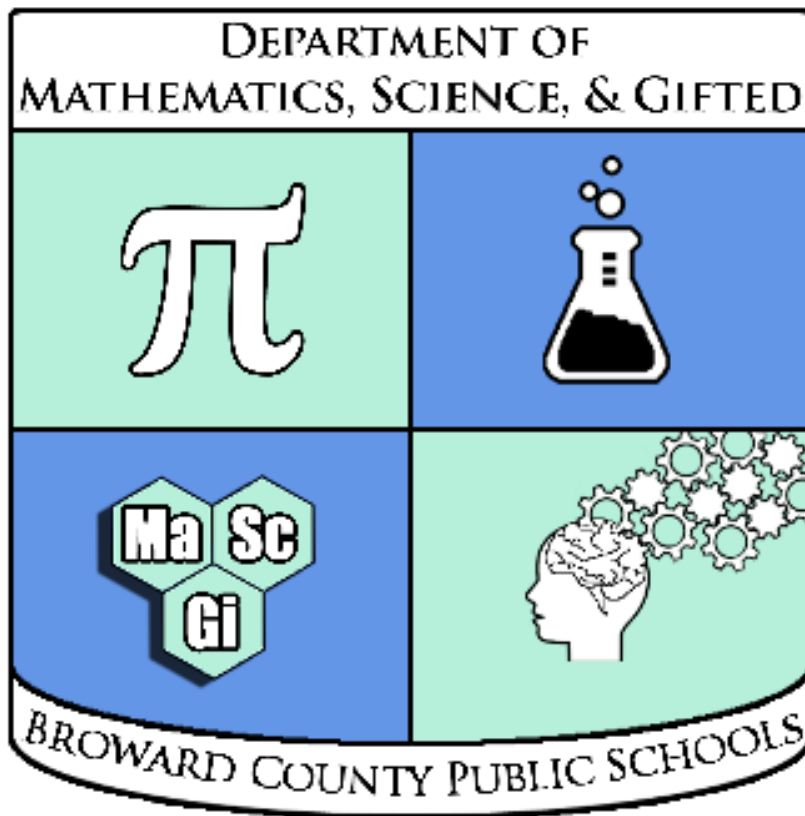


Name: _____

EOC FSA

Practice Test



Algebra 2

No Calculator Portion

Compiled by the Broward County Public Schools
Office of Instruction and Intervention
Mathematics, Science, & Gifted Department

Algebra 2 EOC FSA Mathematics Reference Sheet

Customary Conversions

1 foot = 12 inches
1 yard = 3 feet
1 mile = 5,280 feet
1 mile = 1,760 yards

1 cup = 8 fluid ounces
1 pint = 2 cups
1 quart = 2 pints
1 gallon = 4 quarts

1 pound = 16 ounces
1 ton = 2,000 pounds

Metric Conversions

1 meter = 100 centimeters
1 meter = 1000 millimeters
1 kilometer = 1000 meters

1 liter = 1000 milliliters

1 gram = 1000 milligrams
1 kilogram = 1000 grams

Time Conversions

1 minute = 60 seconds
1 hour = 60 minutes
1 day = 24 hours
1 year = 365 days
1 year = 52 weeks

Algebra 2 EOC FSA Mathematics Reference Sheet

Formulas

$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$, where a , b , and c are coefficients in an equation of the form $ax^2 + bx + c = 0$

$$\log_b a = \frac{\log a}{\log b}$$

$$\sin A^\circ = \frac{\text{opposite}}{\text{hypotenuse}}$$

$$\cos A^\circ = \frac{\text{adjacent}}{\text{hypotenuse}}$$

$$\tan A^\circ = \frac{\text{opposite}}{\text{adjacent}}$$

$$P(B|A) = \frac{P(A \text{ and } B)}{P(A)}$$

$$P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$$

$z = \frac{(x - \mu)}{\sigma}$, where μ = mean and σ = standard deviation

Table of Standard Normal Probabilities for Positive z-scores

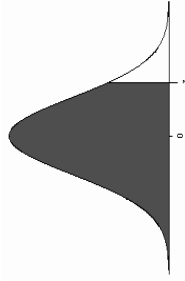
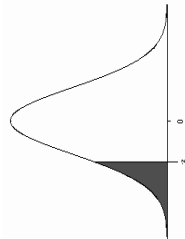


Table of Standard Normal Probabilities for Negative z-scores



z	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.0	0.5000	0.5040	0.5080	0.5120	0.5160	0.5199	0.5239	0.5279	0.5319	0.5359
0.1	0.5398	0.5438	0.5478	0.5517	0.5557	0.5596	0.5636	0.5675	0.5714	0.5753
0.2	0.5793	0.5832	0.5871	0.5910	0.5948	0.5987	0.6026	0.6064	0.6103	0.6141
0.3	0.6179	0.6217	0.6255	0.6293	0.6331	0.6368	0.6406	0.6443	0.6480	0.6517
0.4	0.6554	0.6591	0.6628	0.6664	0.6700	0.6736	0.6772	0.6808	0.6844	0.6879
0.5	0.6915	0.6950	0.6985	0.7019	0.7054	0.7088	0.7123	0.7157	0.7190	0.7224
0.6	0.7257	0.7291	0.7324	0.7357	0.7389	0.7422	0.7454	0.7486	0.7517	0.7549
0.7	0.7580	0.7611	0.7642	0.7673	0.7704	0.7734	0.7764	0.7794	0.7823	0.7852
0.8	0.7881	0.7910	0.7939	0.7967	0.7995	0.8023	0.8051	0.8078	0.8106	0.8133
0.9	0.8159	0.8186	0.8212	0.8238	0.8264	0.8289	0.8315	0.8340	0.8365	0.8389
1.0	0.8413	0.8438	0.8461	0.8485	0.8508	0.8531	0.8554	0.8577	0.8599	0.8621
1.1	0.8643	0.8665	0.8686	0.8708	0.8729	0.8749	0.8770	0.8790	0.8810	0.8830
1.2	0.8849	0.8869	0.8888	0.8907	0.8925	0.8944	0.8962	0.8980	0.8997	0.9015
1.3	0.9032	0.9049	0.9066	0.9082	0.9099	0.9115	0.9131	0.9147	0.9162	0.9177
1.4	0.9192	0.9207	0.9222	0.9236	0.9251	0.9265	0.9279	0.9292	0.9306	0.9319
1.5	0.9332	0.9345	0.9357	0.9370	0.9382	0.9394	0.9406	0.9418	0.9429	0.9441
1.6	0.9452	0.9463	0.9474	0.9484	0.9495	0.9505	0.9515	0.9525	0.9535	0.9545
1.7	0.9554	0.9564	0.9573	0.9582	0.9591	0.9599	0.9608	0.9616	0.9625	0.9633
1.8	0.9641	0.9649	0.9656	0.9664	0.9671	0.9678	0.9686	0.9693	0.9699	0.9706
1.9	0.9713	0.9719	0.9726	0.9732	0.9738	0.9744	0.9750	0.9756	0.9761	0.9767
2.0	0.9772	0.9778	0.9783	0.9788	0.9793	0.9798	0.9803	0.9808	0.9812	0.9817
2.1	0.9821	0.9826	0.9830	0.9834	0.9838	0.9842	0.9846	0.9850	0.9854	0.9857
2.2	0.9861	0.9864	0.9868	0.9871	0.9875	0.9878	0.9881	0.9884	0.9887	0.9890
2.3	0.9893	0.9896	0.9898	0.9901	0.9904	0.9906	0.9909	0.9911	0.9913	0.9916
2.4	0.9918	0.9920	0.9922	0.9925	0.9927	0.9929	0.9931	0.9932	0.9934	0.9936
2.5	0.9938	0.9940	0.9941	0.9943	0.9945	0.9946	0.9948	0.9949	0.9951	0.9952
2.6	0.9953	0.9955	0.9956	0.9957	0.9959	0.9960	0.9961	0.9962	0.9963	0.9964
2.7	0.9965	0.9966	0.9967	0.9968	0.9969	0.9970	0.9971	0.9972	0.9973	0.9974
2.8	0.9974	0.9975	0.9976	0.9977	0.9978	0.9979	0.9979	0.9979	0.9980	0.9981
2.9	0.9981	0.9982	0.9982	0.9983	0.9984	0.9984	0.9985	0.9985	0.9986	0.9986
3.0	0.9987	0.9987	0.9987	0.9988	0.9988	0.9989	0.9989	0.9989	0.9990	0.9990
3.1	0.9990	0.9991	0.9991	0.9991	0.9992	0.9992	0.9992	0.9992	0.9993	0.9993
3.2	0.9993	0.9993	0.9994	0.9994	0.9994	0.9994	0.9994	0.9994	0.9995	0.9995
3.3	0.9995	0.9995	0.9995	0.9996	0.9996	0.9996	0.9996	0.9996	0.9996	0.9997
3.4	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9998

z	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
-3.4	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0002
-3.3	0.0005	0.0005	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0003
-3.2	0.0007	0.0007	0.0006	0.0006	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005
-3.1	0.0010	0.0009	0.0009	0.0008	0.0008	0.0008	0.0008	0.0007	0.0007	0.0007
-3.0	0.0013	0.0013	0.0012	0.0012	0.0011	0.0011	0.0011	0.0010	0.0010	0.0010
-2.9	0.0019	0.0018	0.0018	0.0017	0.0016	0.0016	0.0015	0.0014	0.0014	0.0014
-2.8	0.0026	0.0025	0.0024	0.0023	0.0023	0.0022	0.0021	0.0020	0.0020	0.0019
-2.7	0.0035	0.0034	0.0033	0.0032	0.0031	0.0030	0.0029	0.0028	0.0027	0.0026
-2.6	0.0047	0.0045	0.0044	0.0043	0.0041	0.0040	0.0039	0.0038	0.0037	0.0036
-2.5	0.0062	0.0060	0.0059	0.0057	0.0055	0.0054	0.0052	0.0051	0.0049	0.0048
-2.4	0.0082	0.0080	0.0078	0.0075	0.0073	0.0071	0.0069	0.0068	0.0066	0.0064
-2.3	0.0107	0.0104	0.0102	0.0099	0.0096	0.0094	0.0091	0.0089	0.0087	0.0084
-2.2	0.0139	0.0136	0.0132	0.0129	0.0125	0.0122	0.0119	0.0116	0.0113	0.0110
-2.1	0.0179	0.0174	0.0170	0.0166	0.0162	0.0158	0.0154	0.0150	0.0146	0.0143
-2.0	0.0228	0.0222	0.0217	0.0212	0.0207	0.0202	0.0197	0.0192	0.0188	0.0183
-1.9	0.0287	0.0281	0.0274	0.0268	0.0262	0.0256	0.0250	0.0244	0.0239	0.0233
-1.8	0.0359	0.0351	0.0344	0.0336	0.0329	0.0322	0.0314	0.0307	0.0301	0.0294
-1.7	0.0446	0.0436	0.0427	0.0418	0.0409	0.0401	0.0392	0.0384	0.0375	0.0367
-1.6	0.0548	0.0537	0.0526	0.0516	0.0505	0.0495	0.0485	0.0475	0.0465	0.0455
-1.5	0.0668	0.0655	0.0643	0.0630	0.0618	0.0606	0.0594	0.0582	0.0571	0.0559
-1.4	0.0808	0.0793	0.0778	0.0764	0.0749	0.0735	0.0721	0.0708	0.0694	0.0681
-1.3	0.0968	0.0951	0.0934	0.0918	0.0901	0.0885	0.0869	0.0853	0.0838	0.0823
-1.2	0.1151	0.1131	0.1112	0.1093	0.1075	0.1056	0.1038	0.1020	0.1003	0.0985
-1.1	0.1357	0.1335	0.1314	0.1292	0.1271	0.1251	0.1230	0.1210	0.1190	0.1170
-1.0	0.1587	0.1562	0.1539	0.1515	0.1492	0.1469	0.1446	0.1423	0.1401	0.1379
-0.9	0.1841	0.1814	0.1788	0.1762	0.1736	0.1711	0.1685	0.1660	0.1635	0.1611
-0.8	0.2119	0.2090	0.2061	0.2033	0.2005	0.1977	0.1949	0.1922	0.1894	0.1867
-0.7	0.2420	0.2389	0.2358	0.2327	0.2296	0.2266	0.2236	0.2206	0.2177	0.2148
-0.6	0.2743	0.2709	0.2676	0.2643	0.2611	0.2578	0.2546	0.2514	0.2483	0.2451
-0.5	0.3085	0.3050	0.3015	0.2981	0.2946	0.2912	0.2877	0.2843	0.2810	0.2776
-0.4	0.3446	0.3409	0.3372	0.3336	0.3300	0.3264	0.3228	0.3192	0.3156	0.3121
-0.3	0.3821	0.3783	0.3745	0.3707	0.3669	0.3632	0.3594	0.3557	0.3520	0.3483
-0.2	0.4207	0.4168	0.4129	0.4090	0.4052	0.4013	0.3974	0.3936	0.3897	0.3859
-0.1	0.4602	0.4562	0.4522	0.4483	0.4443	0.4404	0.4364	0.4325	0.4286	0.4247
-0.0	0.5000	0.4960	0.4920	0.4880	0.4840	0.4801	0.4761	0.4721	0.4681	0.4641

$$z = \frac{(x - \mu)}{\sigma}, \text{ where } \mu = \text{mean and } \sigma = \text{standard deviation}$$

Algebra 2 EOC FSA Practice Test (No Calculator Portion)

1

A rational expression is shown.

$$\frac{x^4 - 1}{x + 1}$$

What is the quotient?

←
→
↶
↷
✖

1	2	3	x
4	5	6	+ - * ÷
7	8	9	< ≤ = ≥ >
0	.	-	$\frac{\square}{\square}$ \square^\square \square_\square () $\sqrt{\square}$ $\sqrt[\square]{\square}$ π i

2

A number is shown.

$$\sqrt{-25}$$

Show the value of this number in $a + bi$ form.

←
→
↶
↷
✖

1	2	3	+	-	*	÷	
4	5	6	<	≤	=	≥	>
7	8	9	$\frac{\square}{\square}$ \square^\square \square_\square () $\sqrt{\square}$ $\sqrt[\square]{\square}$ π i				
0	.	-					

6

The sum of two quadratic expressions is 3 times the difference of the expressions.

The first expression is shown.

$$4x^2 - 6x + 10$$

Marci's steps for finding the second expression are shown.

$$\text{Let } A = 4x^2 - 6x + 10$$

$$\text{Let } B = \text{second expression}$$

$$(A + B) = 3(A - B)$$

$$A + B = 3A - 3B$$

$$4B = 2A$$

$$4B = 2(4x^2 - 6x + 10)$$

$$4B = 8x^2 - 12x + 20$$

Create an equation that shows the next step used to find B.

←
→
↶
↷
✖

1	2	3	x	B							
4	5	6	+	-	*	÷					
7	8	9	<	≤	=	≥	>				
0	.	-	$\frac{\square}{\square}$	\square^\square	\square_\square	()		$\sqrt{\square}$	$\sqrt[\square]{\square}$	π	i

7

Given that $x > 0$, which expression is equivalent to $5\sqrt{xy} + 25\sqrt{x}$?

Ⓐ $5(xy)^{-1} + 25x^{-1}$

Ⓒ $\sqrt{x}(25y^{\frac{1}{2}} + 5)$

Ⓑ $25x^{\frac{1}{2}}(\sqrt{y} + 5)$

Ⓓ $5x^{\frac{1}{2}}(y^{\frac{1}{2}} + 5)$

8

An expression is shown.

$$\left(\frac{64y^9}{x^{-3}}\right)^{\frac{1}{3}}$$

Create an equivalent expression.

Use only positive integer exponents in your answer.

←	→	↶	↷	✖							
1	2	3	x	y							
4	5	6	+	-	*	÷					
7	8	9	<	≤	=	≥	>				
0	.	-	$\frac{\square}{\square}$	\square^\square	\square_\square	()		$\sqrt{\square}$	$\sqrt[\square]{\square}$	π	i

9

Create an expression that is equivalent to $(4x^2 + 7x - 9) - (-2x^2 - 4x + 6)$.

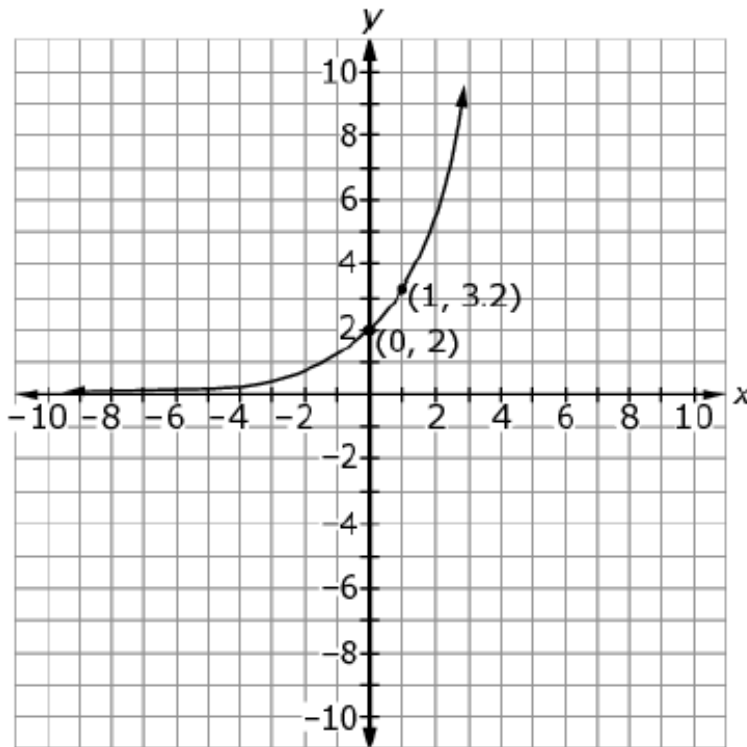
←	→	↶	↷	✖							
1	2	3	x								
4	5	6	+	-	*	÷					
7	8	9	<	≤	=	≥	>				
0	.	-	$\frac{\square}{\square}$	\square^\square	\square_\square	()		$\sqrt{\square}$	$\sqrt[\square]{\square}$	π	i

10

Jean polled a random sample from a population and calculated a sample statistic. Jean can use this statistic to draw an inference about what?

- Ⓐ the corresponding sample parameter Ⓒ the corresponding population statistic
 Ⓑ the population size Ⓓ the corresponding population parameter

- 13 A graph of an exponential function is shown.



Which equation represents the function shown in this graph?

- (A) $y = 2(3.2)^x$ (C) $y = 3.2(2)^x$
(B) $y = 2(1.6)^x$ (D) $y = 1.6(2)^x$

14

A function is shown.

$$y = 8x^2 + 48x - 56$$

Over which intervals is the graph increasing, decreasing, or neither?

Above each interval on the horizontal axis, click "I" to show increasing, "D" to show decreasing, or "N" to show neither.

Intervals where function is increasing (I), or decreasing (D), or neither (N)

-10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 x

15

A small object with mass m is attached to a ceiling by a spring. The spring is pulled straight down and released so that the object begins to oscillate up and down. The period T of the object's oscillation is given

by the formula $T = 2\pi\sqrt{\frac{m}{k}}$, where k is the spring constant, which describes the stiffness of the spring.

Which of the following gives k as a function of m and T ?

(A) $k = \frac{4\pi^2 \sqrt{m}}{T}$

(C) $k = \frac{4\pi^2 m}{T^2}$

(B) $k = \frac{2\pi\sqrt{m}}{T}$

(D) $k = \frac{2\pi m}{T^2}$

16

Meg deposited \$1000 into a bank account that pays 3% monthly interest.

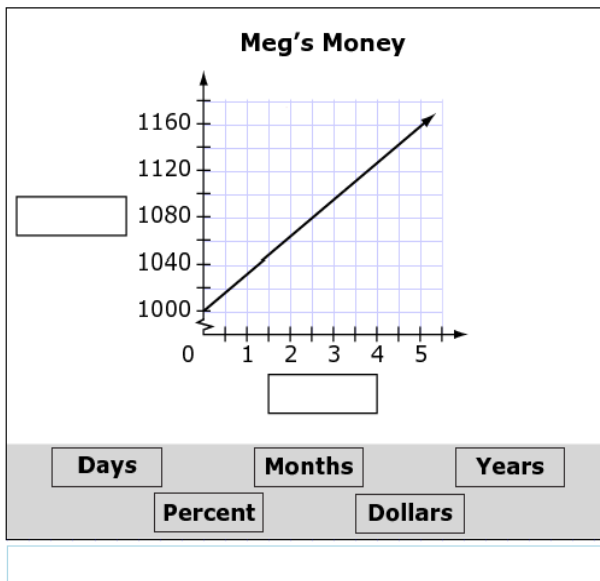
The formula for compound interest is shown.

$$A = P\left(1 + \frac{r}{n}\right)^{nt}$$

- P is the principal
- r is the rate
- n is the number of times compounded per year
- t is the time in years

Use the data in the graph to determine which units would be most appropriate to represent the information in the graph.

Drag a label to each box.



17

Consider the equation $\frac{4^{x^2}}{2^x} = 2$.

Which equation is equivalent to the equation shown?

- (A) $2^{x^2} = 2$
- (B) $2^{x^2 - x} = 2$
- (C) $2^{2x} = 2$
- (D) $2^{2x^2 - x} = 2$

18

A set of exponential equations is shown.

Drag **all** of the functions that model exponential decay into the box.

Exponential Decay

$y = (0.99)^x$	$y = (0.86)^{\frac{x}{0.3}}$	$y = (1.27)^{0.3x}$
$y = (1.07)^x$	$y = 0.99(0.12)^x$	$y = 0.89(1.02)^x$
	$y = (1.01)^{\frac{x}{0.1}}$	

19

An equation is shown.

$$x = \log(20) + 2$$

What is the exponential form of the equation?

←→↶↷✖

1	2	3	x								
4	5	6	+	-	*	÷					
7	8	9	<	≤	=	≥	>				
0	.	-	$\frac{\square}{\square}$	\square^\square	\square_\square	()		$\sqrt{\square}$	$\sqrt[\square]{\square}$	π	i

20

A radio station wants to get the opinions of listeners on the host of a new radio show. The station's staff emails a survey to all listeners who have subscribed to their online listening option. Is this sampling method biased, and why or why not?

- Ⓐ The sample is not biased. It is a random sample.
- Ⓑ The sample is not biased. The listeners have certainly heard the show.
- Ⓒ The sample is biased. Some people who listen to the radio show might not subscribe to the online listening option.
- Ⓓ The sample is biased. There is no way to know if the online subscribers listen to the station.

24

A quadratic equation is shown.

$$4(x + 7)^2 = 11$$

Solve the equation and create one possible solution in radical form.

← → ↶ ↷ ✕

1	2	3	x								
4	5	6	+	-	*	÷					
7	8	9	<	≤	=	≥	>				
0	.	-	$\frac{\square}{\square}$	\square^\square	\square_\square	()		$\sqrt{\square}$	$\sqrt[\square]{\square}$	π	i

25

An expression in exponential form is shown.

$$x^{\frac{1}{3}}$$

Create the equivalent radical form of the expression.

← → ↶ ↷ ✕

1	2	3	x								
4	5	6	+	-	*	÷					
7	8	9	<	≤	=	≥	>				
0	.	-	$\frac{\square}{\square}$	\square^\square	\square_\square	()		$\sqrt{\square}$	$\sqrt[\square]{\square}$	π	i

26

When using a $c\%$ confidence interval to estimate a population mean or proportion, how does the interval change as the value of c changes?

- (A) The interval gets wider as the value of c increases. (C) The interval depends on the sample mean or proportion, not the value of c .
- (B) The interval gets narrower as the value of c increases. (D) The interval depends on the sample standard deviation, not the value of c .

30 Determine which sampling method is most likely to be representative of the opinions of voters in an election race for governor of a state.

- (A) Over the course of a week, poll every customer who comes into a car dealership and is willing to answer questions.
- (B) Send questionnaires to 500 randomly selected registered members of each of the recognized political parties in the state.
- (C) Call 1000 randomly selected registered voters and ask their opinions.
- (D) Ask viewers of the 11:00 P.M. news on a local television station to register their opinions on the station's web site.

31

A square has side length x .

A new square is created by subtracting y from each side of the original square.

Create an expression for the area of the new square in expanded form.

← → ↶ ↷ ✖

1	2	3	x	y							
4	5	6	+	-	*	÷					
7	8	9	<	≤	=	≥	>				
0	.	-	$\frac{\square}{\square}$	\square^\square	\square_\square	()		$\sqrt{\square}$	$\sqrt[\square]{\square}$	π	i

32

Two functions are shown.

$$f(x) = 3x + 1$$

$$g(x) = -\frac{3}{2}x - 7$$

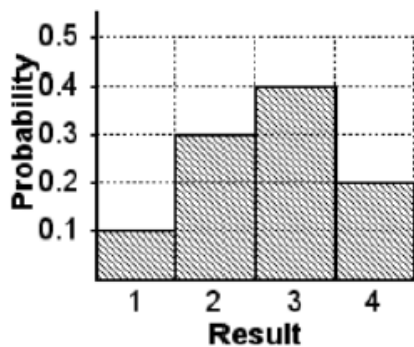
What is the value of x when $f(x) = g(x)$?

← → ↶ ↷ ✖

1	2	3	+	-	*	÷					
4	5	6	<	≤	=	≥	>				
7	8	9	$\frac{\square}{\square}$	\square^\square	\square_\square	()		$\sqrt{\square}$	$\sqrt[\square]{\square}$	π	i
0	.	-									

33

A probability model for a spinner with 4 unequal sections labeled 1, 2, 3, and 4 is shown. Which result is most unlikely for this model?



- (A) The spinner lands on 1 twice in 20 spins. (C) The spinner lands on 3 twice in 25 spins.
- (B) The spinner lands on 2 twice in 5 spins. (D) The spinner lands on 4 twice in 10 spins.

- 37 Which of these pairs of events are dependent?
- (A) You flip a coin and get tails. You flip it a second time and get heads.
 - (B) You pull your friend's name out of a hat that holds 20 different names, replace the name, then draw out your friend's name again.
 - (C) You spin a spinner divided into five equal parts and is numbered 1-5. You get a 3 on the first spin, and then spin again and get a 2 on the second spin.
 - (D) You remove a black sock from a drawer without looking, then remove another black sock.

38

Two equations are shown.

$$a_1 = \frac{3}{4} + \frac{1}{2}i$$

$$a_2 = \frac{1}{4} + \frac{1}{6}i$$

What is the value of $a_1 - a_2 + \frac{3}{7}$ in $a + bi$ form?

←
→
↶
↷
✖

1	2	3	+	-	*	÷						
4	5	6	<	≤	=	≥	>					
7	8	9	$\frac{\square}{\square}$	\square^\square	\square_\square	()		$\sqrt{\square}$	$\sqrt[\square]{\square}$	π	i	
0	.	-										

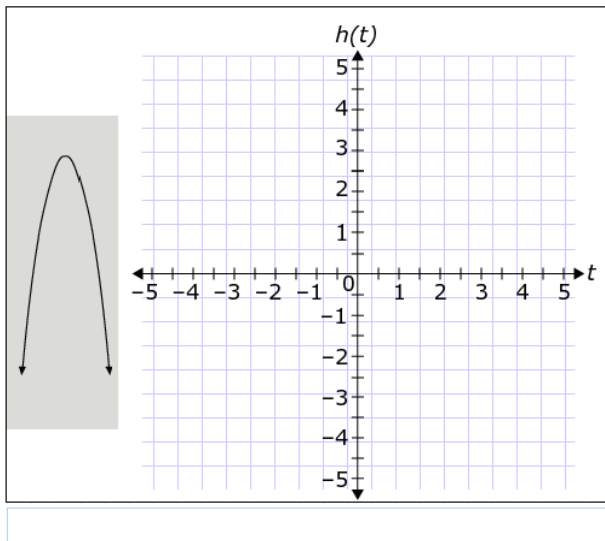
- 39 The cross section of a television antenna dish is a parabola. For the dish at the right, the receiver is located at the focus, 4 feet above the vertex. Find an equation for cross section of the dish. (Assume the vertex is at the origin.) If the dish is 8 feet wide, how deep is it?

40

The path of a ball follows a function, as shown.

$$h(t) = -4.9t^2 + 4$$

Move the parabola shown to graph the function $h(t)$.



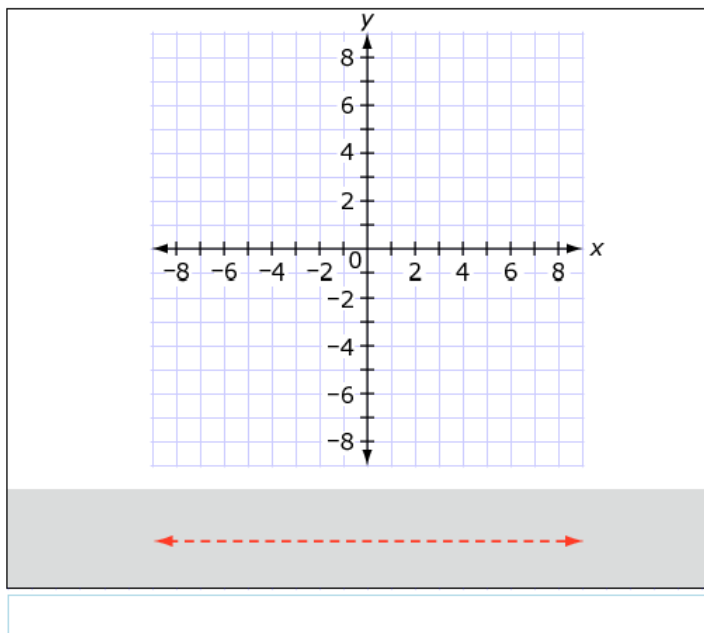
41

An equation is shown.

$$y = \frac{8x^2}{4x^2 - 7x + 5}$$

What is the horizontal asymptote for this equation?

Drag the dashed line to the coordinate grid to graph the horizontal asymptote for this equation.

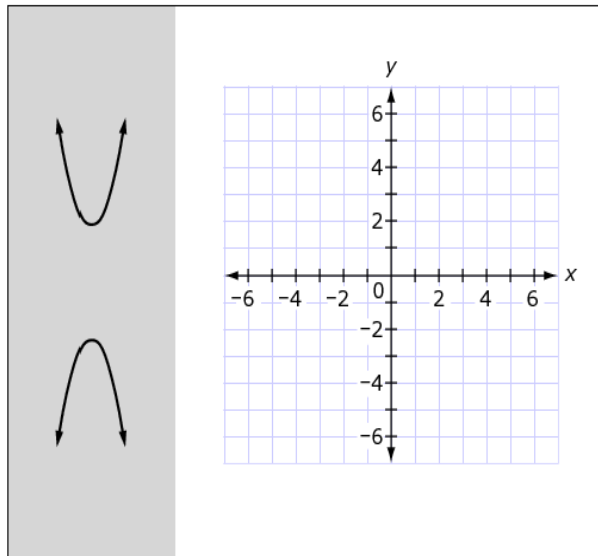


42

Consider the quadratic function shown.

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

Move one parabola onto the coordinate grid to show the transformation $f(x) + 3$.



43

The table of values represents an absolute value function.

x	y
-1	5
0	3
1	1
2	1
3	3

- A. Use the Add Point tool to plot the minimum of this function.
- B. Drag numbers into the boxes and an operation symbol into the circle to create the equation of this function.

+
Delete ✖
Add Point ➡

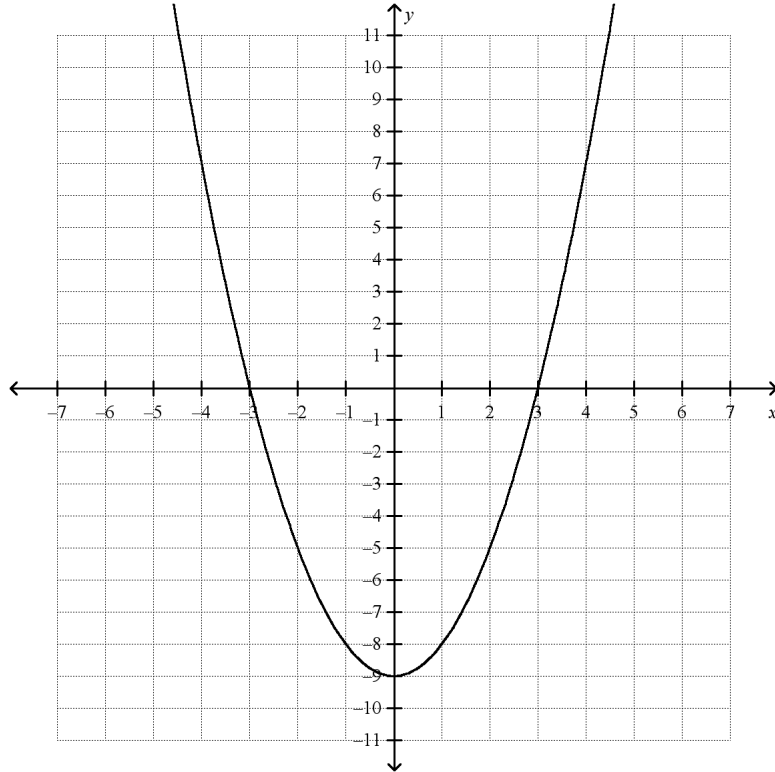
A. Plot the minimum.

B. Create the equation. $y = \left| \square x \circ \square \right|$

44 In a bag of 20 candies, 12 are red and 15 have peanuts in them. If the events of picking a red candy and picking a candy with peanuts are independent, how many of the red candies have peanuts?

- (A) 3
- (C) 9
- (B) 6
- (D) 12

45 A graph is shown.



Which equation has the same minimum as this graph?

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

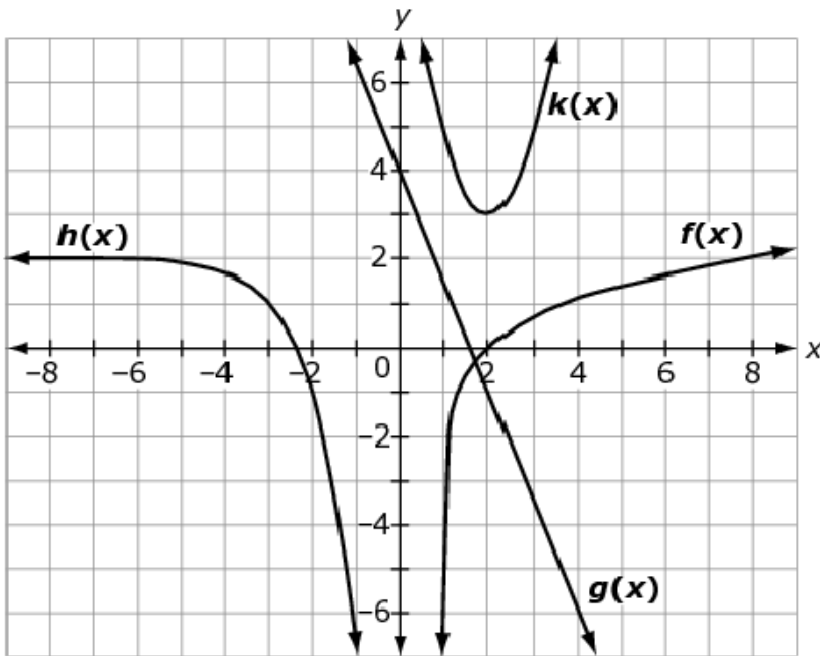
(C) $y = -x^2 - 6x$

(B) $y = x^2 + 9$

(D) $y = x^2 - 6x$

50

The graphs of $f(x)$, $g(x)$, $h(x)$, and $k(x)$ are shown.



Which function changes at a constant rate per unit relative to x ?

- (A) $f(x)$ (C) $h(x)$
(B) $g(x)$ (D) $k(x)$