Name: _____

EOC FSA

Practice Test

DEPARTMENT OF
MATHEMATICS, SCIENCE, & GIFTED

Ma Sc Gi

BROWARD COUNTY PUBLIC SCHOOLS

Algebra 2

Calculator Portion

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

$x = \dfrac{-b \pm \sqrt{b^2 - 4ac}}{2a}$, where a, b, and c are coefficients in an equation of the

form $ax^2 + bx + c = 0$

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

$\sin A° = \dfrac{\text{opposite}}{\text{hypotenuse}}$

$\cos A° = \dfrac{\text{adjacent}}{\text{hypotenuse}}$

$\tan A° = \dfrac{\text{opposite}}{\text{adjacent}}$

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

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

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

Table of Standard Normal Probabilities for Negative z-scores

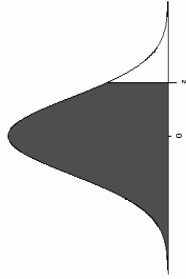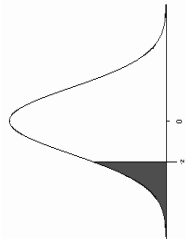| z	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
-3.4	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0002
-3.3	0.0005	0.0005	0.0005	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0003
-3.2	0.0007	0.0007	0.0006	0.0006	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005
-3.1	0.0010	0.0009	0.0009	0.0009	0.0008	0.0008	0.0008	0.0008	0.0007	0.0007
-3.0	0.0013	0.0013	0.0013	0.0012	0.0012	0.0011	0.0011	0.0011	0.0010	0.0010
-2.9	0.0019	0.0018	0.0018	0.0017	0.0016	0.0016	0.0015	0.0015	0.0014	0.0014
-2.8	0.0026	0.0025	0.0024	0.0023	0.0023	0.0022	0.0021	0.0021	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

Table of Standard Normal Probabilities for Positive 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	0.9977	0.9978	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	0.9995	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

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

Algebra 2 EOC FSA Practice Test (Calculator Portion)

1

The height of a coconut falling from a tree can be represented by the function $h(t) = -16t^2 + 24$, where $h(t)$ is the height of the coconut, in feet, and t is time, in seconds.

What is the initial height, in feet, of the coconut?

1	2	3
4	5	6
7	8	9
0	.	-

2

A scientist studies several colonies of bacteria. She records the number of cells in the colony every hour. Several tables containing the data are shown.

Click on the table or tables that represent exponential growth.

Colony 1			Colony 2			Colony 3	
Hours	**Cells**		**Hours**	**Cells**		**Hours**	**Cells**
0	10		0	3		0	4.0
1	25		1	12		1	4.5
2	40		2	48		2	5.0
3	55		3	192		3	5.5

Colony 4			Colony 5	
Hours	**Cells**		**Hours**	**Cells**
0	8		0	200
1	12		1	100
2	18		2	50
3	27		3	25

3 A farmer has 160 meters of fencing to make two enclosures, one for his goats and one for his pigs. The farmer plans to make a circular enclosure for his goats and a rectangular enclosure for his pigs. He plans to use between 20 meters and 30 meters of fencing to make the pig enclosure. Based on the constraints, which describes the possibilities for the area A of the goat enclosure? Round to the nearest whole number as needed.

Ⓐ $21m^2 \le A \le 22m^2$ Ⓒ $130m^2 \le A \le 140m^2$

Ⓑ $1345m^2 \le A \le 1560m^2$ Ⓓ $5380m^2 \le A \le 6240m^2$

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

Which values are solutions to the equation?

Select **all** that apply.

Ⓐ -2

Ⓑ -1

Ⓒ $-\dfrac{1}{2}$

Ⓓ $\dfrac{1}{2}$

Ⓔ 1

Ⓕ 2

5

What extraneous solution arises when the equation $\sqrt{x+3} = 2x$ is solved for x by first squaring both sides of the equation?

Enter your answer in the box.

[ ]

6 The heights of adult males in the United States are approximately normally distributed. The mean height is 70 inches (5 feet 10 inches) and the standard deviation is 3 inches.

Use the table to estimate the probability that a randomly-selected male is more than 74.5 inches tall. Express your answer as a decimal.

z	−2.5	−2	−1.5	−1	−0.5	0	0.5	1	1.5	2	2.5
Area	0.01	0.02	0.07	0.16	0.31	0.5	0.69	0.84	0.93	0.98	0.99

Ⓐ 0.07

Ⓑ 0.83

Ⓒ 0.93

Ⓓ 0.5

7 Given the following system of equations, what number should you multiply the first equation by so that the x-term will be eliminated when the first equation is added to the second equation?

$2x - y + 7z = 65$

$-3x + 4y - 2z = -5$

$x + 9y - 5z = -24$

Ⓐ $-\dfrac{3}{2}$

Ⓑ $-\dfrac{2}{3}$

Ⓒ $\dfrac{2}{3}$

Ⓓ $\dfrac{3}{2}$

8   What is *P(A and B)* given that *P(A)* = 0.42, *P(B)* = 0.14, and *P(A or B)* = 0.47?

     Ⓐ   0.06   Ⓒ   0.56

     Ⓑ   0.09   Ⓓ   0.63

9

Currency conversions for British pounds and U.S. dollars are shown.

- 1 British pound = 1.59 U.S. dollars

- 1 U.S. dollar = 0.99 Canadian dollar

The functions $B(x) = 1.59x$ and $C(y) = .99y$ represent these conversions, where x represents British pounds and y represents U.S. dollars.

Create a composite function that represents a conversion from x British pounds to y Canadian dollars.

10   On the unit circle, a central angle θ in standard position intercepts an arc that is 2 units long. If you reflect angle θ across the y-axis to create a new angle α in standard position, what is the measure of α?

     Ⓐ $2 - 2\pi$ radians   Ⓒ $\pi - 2$ radians

     Ⓑ $2 - \pi$ radians   Ⓓ $2\pi - 2$ radians

11   If events A and B are independent, $P(A) = 0.62$, and $P(B \mid A) = 0.93$, what is $P(B)$?

     Ⓐ   0.93   Ⓒ   0.67

     Ⓑ   0.58   Ⓓ   0.41

12   Four cattle ranches plan to increase the size of their herds. the expressions show the predicted herd size for each ranch after n years.

Ranch Data

Ranch Name	Herd Size
Bar 2	100n + 2000
Flying T	90n + 1000
Lazy J	100n + 3000
TC	120n + 1000

Which ranch has the herd with the fastest growth rate?

     Ⓐ   Bar 2   Ⓒ   Lazy J

     Ⓑ   Flying T   Ⓓ   TC

13

What is the solution of the equation $\dfrac{2m^2 + 3m - 5}{m^2 + 4m - 5} = 4$?

Enter your answer in the space provided. Enter only your answer. You may not need to use all of the answer boxes.

$m = \square$

14 If $P(A) = 0.43$ and $P(B \mid A) = 0.89$, find $P(A \text{ and } B)$.
Ⓐ 0.51   Ⓒ 0.11
Ⓑ 0.48   Ⓓ 0.38

15 What is the axis of symmetry of the graph of $f(x) = 3x^2 - 6x + 6$?
Ⓐ $x = -1$ Ⓒ $y = 1$
Ⓑ $x = 1$ Ⓓ $y = 3$

16 The area under the normal curve below is equal to 1 unit. Each grid square has an area of 0.01 unit.

Rainfall (in./yr)

Suppose the annual rainfall in an Alaskan town is normally distributed with a mean of 150 inches per year and a standard deviation of 36 inches per year. Use the graph to approximate the probability that the rainfall in a given year is less than 140 inches. Express your answer as a percent.
Ⓐ 51%   Ⓒ 50%
Ⓑ 61%   Ⓓ 39%

17 What is the distance between the points of intersection of the graphs of $y = x^2$ and $y = 6 - x$?

Ⓐ $\sqrt{26}$ Ⓒ $2\sqrt{37}$

Ⓑ $5\sqrt{2}$ Ⓓ $\sqrt{170}$

18

Mike's class is going on a field trip to the museum. The total cost of the trip includes the cost of the tickets to the museum and a parking fee. Each ticket costs $10, and the parking fee is $20.

A. Select all the equations that represent this situation, where C is the total cost and t is the number of tickets sold.

B. Use the Add Arrow tool to graph this situation.

Delete   X Add Point •—* Add Arrow ⟶

A. Select Equations

$C = 20t + 10$ $C = 10t + 20$

$-10t + C = 20$ $20 = 10t - C$

B. Graph the Situation

19 Of 50 students going on a class trip, 35 are student athletes and 5 are left-handed. Of the student athletes, 3 are left-handed. Which is the probability that one of the students on the trip is an athlete or is left-handed?

Ⓐ 0.2   Ⓒ 0.74
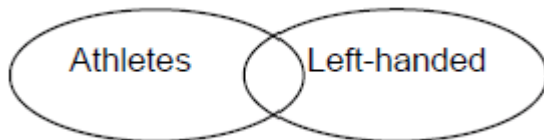
Ⓑ 0.5   Ⓓ 0.8

20 The table below shows the balance b, in dollars, of Daryl's savings account t years after he made an initial deposit. What is an explicit formula for the geometric sequence that represents this situation?

Time, t (years)	Balance, b (dollars)
1	$1218
2	$1236.27
3	$1254.81
4	$1273.64

Ⓐ $b(t) = 1.015(1218)^{t-1}$ Ⓒ $b(t) = 1218 + 1.015(t-1)$

Ⓑ $b(t) = 1218(1.015)^{t}$ Ⓓ $b(t) = 1218(1.015)^{t-1}$

21 Which of the following always has the same value as $\sin\theta$?

Ⓐ $\sin(\theta + \frac{\pi}{2})$ Ⓒ $\sin(\theta + \frac{3\pi}{2})$

Ⓑ $\sin(\theta + \pi)$ Ⓓ $\sin(\theta + 2\pi)$

22 A car decelerates such that each second it travels 5% less than the distance it traveled in the previous second. About how far does the car travel in 5 seconds if it is traveling at 30 meters per second during the first second of deceleration?

Ⓐ 100.0 m   Ⓒ 142.5 m

Ⓑ 135.7 m   Ⓓ 165.8 m

23 Sara examines two events, M and C. $P(M)$ is $\frac{2}{7}$ and $P(M$ and $C)$ is $\frac{1}{14}$. If M and C are independent events, what is $P(C)$?

Ⓐ $\frac{1}{49}$ Ⓒ $\frac{1}{4}$

Ⓑ $\frac{3}{14}$ Ⓓ $\frac{5}{14}$

24 110 students are surveyed about their pets. The results are shown in the table. Which statement is true?

	Boys	Girls	Total
At least one pet	18	39	57
no pets	27	26	53
Total	45	65	110

Ⓐ 27% of the boys have no pets.   Ⓒ 49% of the girls have no pets.

Ⓑ 40% of the boys have at least one pets.   Ⓓ 57% of the students have at least one pets.

25 Given that $\cos\theta = 0.7087$ and $\dfrac{3\pi}{2} < \theta < 2\pi$, what is the approximate value of $\sin\theta$?

Ⓐ -0.7055 Ⓒ 0.4977
Ⓑ -0.4977 Ⓓ 0.7055

26 A manufacturer finds that the life expectancy of its best-selling model of dishwashers is 11 years and the standard deviation is 1 year. The lifespans are approximately normally-distributed. What percent of dishwasher models will last from 9 to 13 years?

Ⓐ About 47.5% Ⓒ About 95%
Ⓑ About 68% Ⓓ About 34%

27

Part A

An expression is given.
$$x^2 - 8x + 21$$

Determine the values of h and k that make the expression $(x - h)^2 + k$ equivalent to the given expression.

Enter your answers in the space provided. Enter **only** your answer.

$h = \square$
$k = \square$

Part B

An equation is given.
$$x^2 - 8x + 21 = (x - 4)^2 + 3x - 16$$

Find one value of x that is a solution to the given equation.

Use the Equation Editor. Enter ONLY your solution.

$x = \square$

28 Events A and B are independent. Find the missing probability.
$P(A) = \underline{\ ?\ }$
$P(B) = 0.3$
$P(A \text{ and } B) = 0.06$

(A) 0.7   (C) 0.2

(B) 0.24   (D) 0.3

29 *The following carryout combinations are available at Mike's Carryout.*

Combo Meal	Price
One pizza (10 inches), one coke (300 milliliters), one bag of chips (200 grams)	$9.00
One pizza (10 inches), two cokes (300 milliliters)	$10.00
Two pizzas (10 inches), two bags of chips (200 grams)	$12.00

Assume that the price of a combo meal is the same price as purchasing each item separately. Find the price of a pizza, a coke, and a bag of chips.

(A) pizza: $2, coke: $4, bag of chips: $3   (C) pizza: $3, coke: $2, bag of chips: $4

(B) pizza: $2, coke: $3, bag of chips: $4   (D) pizza: $4, coke: $3, bag of chips: $2

30 The table below shows the number of days that a meteorologist predicted it would be sunny, and the number of days it was sunny. Based on the data in the table, what is the conditional probability that it will be sunny on a day when the meteorologist predicts it will be sunny?

	Sunny	Not Sunny	Total
Predicts sunny	570	20	590
Does not predict sun	63	347	410
Total	633	367	1000

(A) 57%   (C) 90%

(B) 59%   (D) 97%

31 Select all the solutions for the following system:

$$x^2 = 2y + 10$$

$$3x - y = 9$$

(A) (-3, 2)   (E) (4, 3)
(B) (2, -3)   (F) (0, 0)
(C) (4, 2)   (G) (3, 4)
(D) (-4, 3)   (H) (3, 3)

32 Researchers randomly select 10 students who are given breakfast and 10 students who are not. Each group takes an 80 question math test 1 hour after the students in the treatment group eat breakfast, and the researchers record the number of questions each student answers correctly. The data are shown in the table. Resampling the data finds that 95% of the differences of the means for the reconfigured treatment and control groups are less than 5.2. (Note that resampling involves randomly scrambling the data from the treatment and control groups and calculating a difference of means for the reconfigured groups: treatment group mean minus control group mean. Each new difference obtained from a resampling becomes part of a resampling distribution.) Is there evidence that eating breakfast increases performance on the math test?

Number of correct questions

Breakfast	No breakfast
56	58
62	54
68	62
73	48
56	68
57	65
49	60
72	72
62	52
57	45

Ⓐ Yes; the difference of the means from the experiment is greater than 5.2.

Ⓑ Yes; the difference of the means from the experiment is less than 5.2.

Ⓒ No; the difference of the means from the experiment is greater than 5.2.

Ⓓ No; the difference of the means from the experiment is less than 5.2.

33 Annie volunteers in the tutoring center at her school. The table shows how much time she spends in the tutoring center each week for six weeks.

Volunteer Hours

Week	Time (minutes)
1	190
2	140
3	105
4	95
5	85
6	85

Which function **best** fits the data?

Ⓐ $y = -40x + 220$

Ⓑ $y = -20x + 186\frac{2}{3}$

Ⓒ $y = 195.5(0.852)^x$

Ⓓ $y = 257.9(0.737)^x$

34 52% of the visitors to a museum purchase tickets to the planetarium. 24% of the visitors to a museum buy tickets for both the planetarium and the 3D theater. About what percent of visitors who buy tickets for the planetarium also buy tickets for the 3D theater?

(A) 28% (C) 54%

(B) 46% (D) 52%

35

An expression is shown.

$$5x^2 + 2x + 1 = 0$$

What is one possible solution to this quadratic equation?

36 An arc on the unit circle is $\dfrac{4\pi}{3}$ units long.

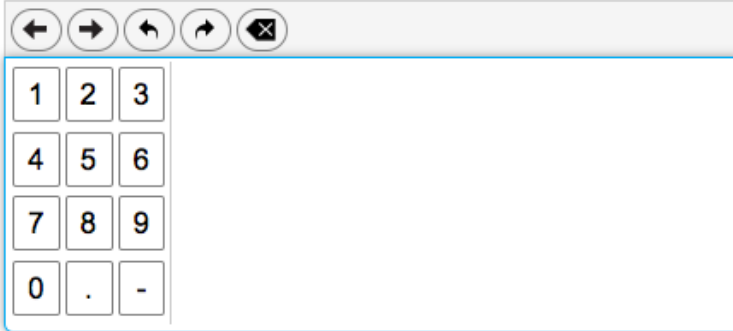What is the degree measure of the arc's central angle?

(A) 60° (C) 240°

(B) 120° (D) 300°

37 A geneticist is studying a population of fruit flies. Of the 1278 flies, 467 are wingless and 446 have red eyes. There are 210 flies that are wingless whose eyes are not red. What is the approximate probability that a fly is wingless or has red eyes?

(A) 0.49 (C) 0.71

(B) 0.51 (D) 0.88

38

An equation is shown.

$(x + 13)^{\frac{1}{2}} = 10$

What is the solution to the equation?

1	2	3
4	5	6
7	8	9
0	.	-

39 Given the following probabilities:

P(A) = 0.5
P(B) = 0.3
P(C) = 0.4
P(D) = 0.7
P(A and B) = 0.8
P(B and C) = 0.75
P(C and D) = 0.28
P(A and D) = 0.2

Which 2 events are independent?

Ⓐ A and B   Ⓒ B and C
Ⓑ A and D   Ⓓ C and D

40 *Chocos is a dish made from wheat, sugar, and cocoa. Bertha is making a large pot of chocos for a party. Wheat (w) costs $5 per pound, sugar (s) costs $3 per pound, and cocoa (c) costs $4 per pound. She spends $48 on 12 pounds of food. She buys twice as much cocoa as sugar.*

How much wheat, sugar, and cocoa will she use (in pounds) in her dish?
Ⓐ wheat: 6 lb, sugar: 3 lb, cocoa: 3 lb   Ⓒ wheat: 3 lb, sugar: 6 lb, cocoa: 3 lb
Ⓑ wheat: 3 lb, sugar: 3 lb, cocoa: 6 lb   Ⓓ wheat: 6 lb, sugar: 2 lb, cocoa: 4 lb

41 Zachary is studying the behavior of a group of cells in a lab. He starts with 500 cells and observes that the cell population triples every hour. The function shown models the number of cells after t hours.

$f(t) = 500(3)^t$

Which equation can be used to determine how many hours it will take for the cell population o reach 50,000?

Ⓐ $\log_{100} 3 = t$

Ⓒ $\log_3 100 = t$

Ⓑ $\log_3 500 = t$

Ⓓ $\log_{1,500} 50,000 = t$

42

Becky throws a ball into the air. The height of the ball in feet, $f(t)$, after t seconds can be modeled by the function shown.

$f(t) = -16t^2 + 40t + 6$

What is the height of the ball, in feet, 2 seconds after Becky throws it?

1	2	3
4	5	6
7	8	9
0	.	-

43

Rebecca records the amount of money, $f(x)$, in her bank account each month, x, as shown in the table.

Bank Account

Month (x)	Amount of Money $f(x)$
0	$ 6
1	$12
2	$24
3	$48
4	$96

Create a function that models this relationship.

1	2	3		x	f(x)
4	5	6		+	-	*	÷
7	8	9		<	≤	=	≥	>
0	.	-		□/□	□□	□□	( )				√□	□√□	π	i

44

An equation is shown.

$$3x^2 + 14x = 5$$

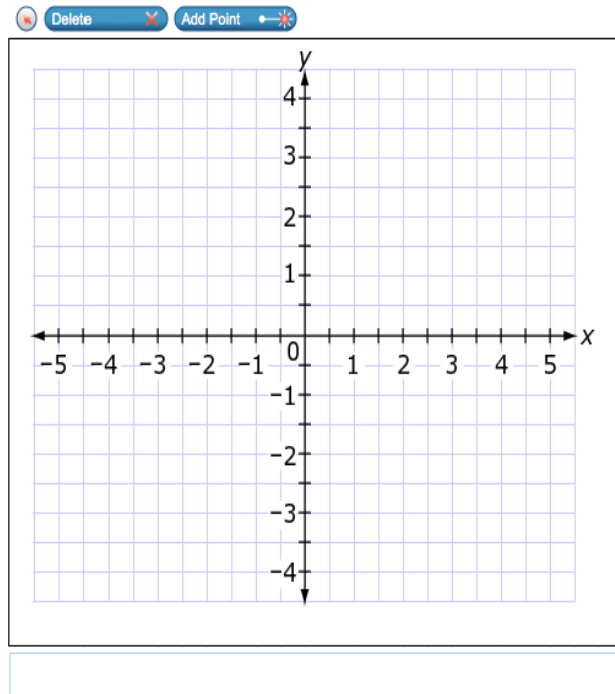Re-create the equation in an equivalent factored form to reveal the zeros.

1	2	3		x
4	5	6		+	-	*	÷
7	8	9		<	≤	=	≥	>
0	.	-		□/□	□□	□□	( )				√□	□√□	π	i

45

A polynomial is shown.

$$y = 4x^3 - 12x^2 - 4x + 12$$

Use the Add Point tool to show the locations of **all** zeros of this polynomial.

46 A mass is suspended from a spring. When the mass is displaced vertically from its resting position and released, the displacement of the mass relative to its resting position is periodic. If the mass is raised 2 inches from its resting position and released, which function could model the displacement d, in inches, of the mass t seconds after being released? (Assume that the displacement above the resting position is positive and the displacement below the resting position is negative.)

  Ⓐ $d(t) = 2 \sin t$ Ⓒ $d(t) = -2 \sin t$

  Ⓑ $d(t) = 2 \cos t$ Ⓓ $d(t) = -2\cos t$