Index Card Sets, for printing on 4 by 6 index cards (landscape)

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11) Written Expressions

Regular Problems

11.1 $5x + 11$

11.2 $3b + 6$

11.3 $4y - 6$

11.4 $7x - 2$

11.5 $3z + 3$

11.6 $x^2 + 4x - 4$

11.7 $4x - 5$

11.8 $(2/3)p + 6$

11.9 $2x + 3$

11.10 $24 - 2k$

11.11 $7 - h$

11.12 $11 - (1/2)c$

Challenging Problems

11.13 $t^2 + 12t + 34$

11.14 $-w^2 + 15w + 3$

Three times the sum of five and a number, plus twice the quantity of two less than the same number.

11.1

Let b be the smallest of three consecutive even integers. Find an expression for the sum of these integers.

11.2

Let y be the largest of four consecutive integers. Find an expression for the sum of these integers.

11.3

Two less than seven times a number. 11.4	Let z be the larger of two numbers whose difference is five. Find an expression for three times the sum of six and the smaller number. 11.5
Twelve less than the square of a number plus four times the sum of two and the same number. 11.6	A number added to five less than triple the same number. 11.7

Let p be the smaller of two numbers whose difference is nine. Find an expression for two thirds of the larger number. 11.8	Half of the sum of six and four times a number. 11.9
Let k be the smaller of two numbers adding to twelve. Find an expression for twice the larger number. 11.10	Let h be the larger of two integers whose sum is nine. Find an expression for two less than the smaller integer. 11.11

Let c be the smaller of two numbers that add to sixteen. Find an expression for three more than half of the larger number. 11.12	Let t be the smaller of two integers whose difference is six. Find an expression for two less than the square of the larger integer. 11.13
Let w be the larger of two integers whose sum is fifteen. Find an expression for three more than the product of the integers. 11.14	

12) Word Problems

Number puzzles
12.1 5 and 15
12.2 4 and 9
12.3 10, 12, and 14
12.4 11 and 16
12.5 6 and 14

Value problems
12.6 22 pennies, 11 nickels, and 7 dimes
12.7 12 quarters and 18 nickels
12.8 20 34¢-stamps and 7 20¢-stamps
12.9 9 acoustic guitars and 5 electric guitars
12.10 4 adult tickets and 18 student tickets
12.11 9 three-point shots and 7 two-point shots

One number is three times larger than another. The larger number is also one less than twice the sum of three and the smaller number. What are the numbers?

12.1

Two numbers add up to thirteen. The larger number is one more than twice the smaller number. What are the numbers?

12.2

Three consecutive even integers add up to 36. What are the three integers?

12.3

Two numbers have a difference of five. The smaller number is three more than half the larger. What are the numbers?

12.4

Two numbers add up to twenty. The larger number is four less than three times the smaller number. What are the numbers?

12.5

A cash register with pennies (1¢), nickels (5¢), and dimes (10¢) holds $1.47. There are four more nickels than dimes, and twice as many pennies as nickels. How many of each coin are in the register?

12.6

A jar contains 30 coins worth $3.90. The jar holds only quarters (25¢) and nickels (5¢). How many quarters and nickels are in the jar?

12.7

A post office has 27 stamps in a folder. The folder contains 34¢ stamps and 20¢ stamps. The total value of the stamps in the folder is $8.20. How many of each type of stamp are in the folder?

12.8

A collector has 14 guitars worth a total of $810. The acoustic guitars are worth $40 each, and the electric guitars are worth $90 each. How many of each type of guitar does the collector have?

12.9

A school spent $168 to buy 22 tickets for a museum field trip. Adult tickets were $15 each and student tickets were $6 each. How many adult tickets and how many student tickets were purchased?

12.10

A basketball player made two more 3-point shots than 2-point shots. If the player scored 41 points, how many of each type of shot did the player make?

12.11

13) Linear Equations

Lines from point & slope

13.1 $y = (3/4)x - 2$

13.2 $y = -2x + 23$

13.3 $y = -(5/2)x + 9$

13.4 $y = (4/7)x - 31/14$

Lines from two points

13.5 $y = -2$

13.6 $y = (3/4)x + 9/2$

13.7 $y = -x + 10$

13.8 $x = 1$

Standard form

13.9 slope 3, y-int –8

13.10 slope $1/2$, y-int –2

13.11 slope $-1/2$, y-int 6

13.12 slope 0, y-int –3

Linear models

13.13 $C(x) = 9x + 4$

13.14 $P(t) = 925t + 21850$

13.15 $S(p) = -14p + 160$

13.16 $y = 0.1125x + 3.1625$

Determine the equation of the line with slope $3/4$ containing the point (0, –2).

13.1

Determine the equation of the line with slope –2 containing the point (6, 11).

13.2

Determine the equation of the line with slope $-3/4$ containing the point (4, –1).

13.3

Determine the equation of the line with slope $\frac{4}{7}$ containing the point $(\frac{2}{3}, -\frac{11}{6})$. 13.4	Determine the equation of the line containing the points (2, –2) and (7, –2). 13.5
Determine the equation of the line containing the points (–2, 3) and (2, 6). 13.6	Determine the equation of the line containing the points (4,6) and (1,9). 13.7

Determine the equation of the line containing the points (1, 7) and (1, 4). 13.8	Determine the slope and y-intercept for the line: $y + 2 = 3(x - 2)$ 13.9
Determine the slope and y-intercept for the line: $2x - 4y = 8$ 13.9	Determine the slope and y-intercept for the line: $y = \frac{12 - x}{2}$ 13.11

Determine the slope and y-intercept for the line: $2 + x - y = 8 + x + y$ 13.12	A gaming company sells plastic figurines for \$9 each, and charges \$4 to ship an order of any size. Model the cost $C(x)$ of purchasing x figurines as a linear function. 13.13
The cost of a non-luxury new car in the year 2000 (call it year zero) averaged \$21,850. In 2024 (call it year 24), the average price for a new car was \$44,050. Model the average price $P(t)$ of a new car in year t as a linear function. 13.14	When Clarissa's Cakes set their price for cakes at \$7, they sold 62 cakes that week. The next week, they reduced the price to \$5 and sold 90 cakes. Model the projected sales $S(p)$ of cakes with a price of p dollars as a linear function. 13.15

During the 3rd modern Olympiad in St. Louis, the winning pole vault was 3.5 meters. During the 23rd modern Olympiad in Los Angeles, the winning pole vault was 5.75 meters. Model the height of the winning vault as a linear function. 13.16	

14) Scientific Notation

Convert into sci. notation

14.1 4.7×10^{4}
14.2 6.392×10^{1}
14.3 7.2×10^{12}
14.4 3.67×10^{-3}
14.5 9.2×10^{-10}
14.6 2.40×10^{-1}

Convert out of sci. notation

14.7 2,800,000,000
14.8 0.00000006
14.9 433.7

Multiplication and division

14.10 7.18×10^{7}
14.11 3.7×10^{4}
14.12 1.4×10^{-5}
14.13 3.47×10^{4}
14.14 5.4×10^{7}
14.15 7.2×10^{-4}

Addition and subtraction

14.16 2.06×10^{8}
14.17 2.64×10^{-4}
14.18 1.33×10^{12}

Convert to scientific notation:
47,000

14.1

Convert to scientific notation:
63.92

14.2

Convert to scientific notation:
7,200,000,000,000

14.3

Convert to scientific notation: 0.00367 14.4	Convert to scientific notation: 0.00000000092 14.5
Convert to scientific notation: 0.240 14.6	Convert to regular notation: 2.8×10^{9} 14.7

Convert to regular notation: 6×10^{-8} 14.8	Convert to regular notation: 4.337×10^{2} 14.9
Calculate using scientific notation: $(4.12 \times 10^{3}) \times (1.742 \times 10^{4})$ 14.10	Calculate using scientific notation: $(7.023 \times 10^{3}) \times (5.3 \times 10^{-3})$ 14.11

Calculate using scientific notation:

$(3.33 \times 10^{-4}) \times (4.1 \times 10^{-2})$

14.12

Calculate using scientific notation:

$$\frac{7.35 \times 10^{6}}{2.118 \times 10^{2}}$$

14.13

Calculate using scientific notation:

$$\frac{6.433 \times 10^{3}}{1.2 \times 10^{-4}}$$

14.14

Calculate using scientific notation:

$$\frac{2.68 \times 10^{-5}}{3.7 \times 10^{-2}}$$

14.15

Calculate using scientific notation:

$(1.352 \times 10^{8}) + (7.1 \times 10^{7})$

14.16

Calculate using scientific notation:

$(2.73 \times 10^{-5}) + (2.37 \times 10^{-4})$

14.17

Calculate using scientific notation:

$(1.43 \times 10^{12}) - (9.7 \times 10^{10})$

14.18

15) Unit Conversions

Regular Problems

15.1 102 yds

15.2 5.7 lbs

15.3 3.6 cups

15.4 3.7 m

15.5 19 gal

15.6 2 oz

15.7 212,600 m

15.8 27,500 s

15.9 20 L

15.10 0.00077 lbs

Ratios, squares, and cubes

15.11 1900 in^2

15.12 0.000068 m^3

15.13 1120 ft/s

15.14 10300 kg/m^2

15.15 1190 lb/ft^3

15.16 16 km/L

Convert 305 feet (height of the Statue of Liberty) to yards.

15.1

Convert 91 ounces (weight of the largest ostrich egg) to pounds.

15.2

Convert 29 ounces (daily consumption by a typical coffee drinker) to cups.

15.3

Convert 12 feet (typical width of a highway lane) to meters. 15.4	Convert 72 liters (typical minivan gas tank capactiy) to gallons. 15.5
Convert 50 grams (weight of a typical toaster pastry) to ounces. 15.6	Convert 132.1 miles (length of interstate 476) to meters. 15.7

Convert 7.65 hours (driving time from Washington DC to Boston) to seconds. 15.8	Convert 40 pints (typical yearly American ice cream consumption) to liters. 15.9
Convert 350 milligrams (sodium content of large fries) to pounds. 15.10	Convert 13 square feet (area of typical office desk) to square inches. 15.11

Convert 68 cubic centimeters (volume of a typical egg) to cubic meters. 15.12	Convert 767 miles per hour (speed of sound) to feet per second. 15.13
Convert 14.6 pounds per square inch (atmospheric pressure at sea level) to kilograms per square meter. 15.14	Convert 19.1 grams per cubic centimeter (density of uranium) to pounds per cubic foot. 15.15

Convert 38 miles per gallon (highway mileage for a Mini Cooper) to kilometers per liter. 15.16	

16) Consumer Price Index

Regular conversions

16.1 $484 million
16.2 $767 million
16.3 $4.45
16.4 $4.4 million
16.5 $34.2 million
16.6 $402 million
16.7 $52,300
16.8 $4760
16.9 $1.24 million
16.10 $93.4

Percentages

16.11 11.0% and 8.0%
16.12 1.9% and 1.2%
16.13 5.6% and 17.7%
16.14 10.2% and 4.5%

Convert $28.6 million (U.S. box office total from "Gone with the Wind" during 1940) into 2015 dollars.

16.1

Convert $196 million (U.S. box office total from "Star Wars" during 1977) into 2015 dollars.

16.2

Convert $55.64 (cost of a pound of uranium ore at its highest in 2011) into 1945 dollars (ending of WWII).

16.3

Convert $53 million (endorsement income for LeBron James in 2014) into 1946 dollars (NBA started). 16.4	In 2012, Ryan Howard signed a contract with an annual salary of $25 million. In 2024, Bryce Harper's contract will give him a salary of $26 million. Convert Howards' salary to 2024 dollars to compare purchasing power. 16.5
The cost of producing, distributing, and advertising for the 1963 movie, *Cleopatra*, reached about $49 million. Convert this to 2018 dollars, when *Jurassic World: Fallen Kingdom* had production costs of about $432 million. 16.6	Virginia Wade defeated Billie Jean King at the US Open in 1968, earning $6000. Convert this to 2023 dollars, when Coco Gauff won $3 million as US Open champion. 16.7

The 830A Laguna System from Altec was one of the finest quality residential Hi-Fi speaker systems that could be bought in 1958 for $639. Convert this to 2008 dollars, when Beats by Dr. Dre launched their headphones for $350.

16.8

Convert the $7 million cost of a 30-second Super Bowl ad in 2023 to 1975 dollars, when a 30-second ad cost $107,000.

16.9

Convert the PlayStation 5 introductory price of $399 in 2020 into 1977 dollars, when the Atari 2600 was launched for $189.95.

16.10

Compare rates of inflation, as relative percentages, from 1973 to 1974 and from 2021 to 2022.

16.11

Compare rates of inflation, as relative percentages, from 1985 to 1986 and from 2019 to 2020. 16.12	Compare the increase in consumer prices, as relative percentages, over these three-year periods: 2017 to 2020 and 2020 to 2023. 16.13
Compare the increase in consumer prices, as relative percentages, over these three-year periods: 2005 to 2008 and 2008 to 2011. 16.14	

17) Interest & Savings Plans

Interest

17.1 $325.20
17.2 $977.28
17.3 $458.26
17.4 $582.64
17.5 $1103.91
17.6 $1006.34

Savings Plans

17.7 $17,088.56
17.8 $130,688.22
17.9 $5804.35
17.10 $29.11
17.11 $15.53
17.12 $140.62

Yield

17.13 5.326%
17.14 5.654%
17.15 5.548%

Calculate the final balance after two years if $300 is deposited into an account offering a rate (APR) of 4.2%, using simple interest.

17.1

Calculate the final balance after eight years if $650 is deposited into an account offering a rate (APR) of 5.1%, compounded weekly.

17.2

Calculate the final balance after eight years if $350 is deposited into an account offering a rate (APR) of 4.5%, compounded monthly.

17.3

Calculate the final balance after five years if $450 is deposited into an account offering a rate (APR) of 5.2%, compounded quarterly (four times a year). 17.4	Calculate the final balance after seven years if $800 is deposited into an account offering a rate (APR) of 4.6%, compounded continuously. 17.5
Calculate the final balance after six years if $750 is deposited into an account offering a rate (APR) of 4.9%, compounded continuously. 17.6	Calculate the final balance after five years if $250 is deposited every month into an account offering a rate (APR) of 5.2%, compounded monthly. 17.7

Calculate the final balance after 20 years if $300 is deposited every month into an account offering a rate (APR) of 5.5%, compounded monthly. 17.8	Calculate the final balance after three years if $150 is deposited every month into an account offering a rate (APR) of 4.9%, compounded monthly. 17.9
Determine how much must be deposited each month into an account offering a rate (APR) of 5.4%, compounded monthly, to get a final balance of $2000 after five years. 17.10	Determine how much must be deposited each month into an account offering a rate (APR) of 4.8%, compounded monthly, to get a final balance of $600 after three years. 17.11

Determine how much must be deposited each month into an account offering a rate (APR) of 5.3%, compounded monthly, to get a final balance of $7500 after four years. 17.12	Calculate the yield (APY) on a savings account offering a rate (APR) of 5.2%, compounded monthly. 17.13
Calculate the yield (APY) on a savings account offering a rate (APR) of 5.5%, compounded continuously. 17.14	Calculate the yield (APY) on a savings account offering a rate (APR) of 5.4%, compounded continuously. 17.15

18) Loan Scenarios

Calculations

18.1 $1935.83
18.2 $2814.78
18.3 $2136.75
18.4 $486.82
18.5 $192.40
18.6 $250,525
18.7 $267,844
18.8 $172,195
18.9 $18,148
18.10 $16,770

Comparisons

18.11 $2236.10 and $2235.31
18.12 $1713.93 and $1720.30
18.13 $611.94 and $634.92
18.14 $265.55 and $252.75

Calculate the monthly payment on a 30-year loan of $300,000 with an interest rate (APR) of 6.7%.

18.1

Calculate the monthly payment on a 30-year loan of $450,000 with an interest rate (APR) of 6.4%.

18.2

Calculate the monthly payment on a 15-year loan of $250,000 with an interest rate (APR) of 6.2%.

18.3

Calculate the monthly payment on a five-year loan of $25,000 with an interest rate (APR) of 6.3%. 18.4	Calculate the monthly payment on a five-year loan of $10,000 with an interest rate (APR) of 5.8%. 18.5
How large a loan can a monthly payment of $1600 support with a 30-year loan at an interest rate (APR) of 6.6%. 18.6	How large a loan can a monthly payment of $1800 support with a 30-year loan at an interest rate (APR) of 7.1%. 18.7

How large a loan can a monthly payment of $1500 support with a 15-year loan at an interest rate (APR) of 6.5%.

18.8

How large a loan can a monthly payment of $350 support with a five-year loan at an interest rate (APR) of 5.9%.

18.9

How large a loan can a monthly payment of $325 support with a five-year loan at an interest rate (APR) of 6.1%.

18.10

Borrowing $350,000 on a 30-year loan at 6.8% (APR), you have the option of using a gift of two points from a relative to either lower the principal or lower the interest rate to 6.6%. Calculate the monthly payment in each scenario.

18.11

Borrowing $200,000 on a 15-year loan at 6.4% (APR), you have the option of using a gift of one point from your employer to either lower the principal or lower the interest rate to 6.3%. Calculate the monthly payment in each scenario. 18.12	Borrowing $35,000 on a five-year loan, you have the option of using a special interest rate of 1.9% (APR) or taking $2000 cash back to lower the principal, but at 5.8%. Calculate the monthly payment in each scenario. 18.13
Borrowing $15,000 on a five-year loan, you have the option of using a special interest rate of 2.4% (APR) or taking $1800 cash back to lower the principal, but at 5.6%. Calculate the monthly payment in each scenario. 18.14	

19) Sampling and Bias

19.1 no bias; 11.5% vs. 12%
19.2 bias in favor of Boiseans; 42.1% vs. 62%
19.3 bias against Scotland; 8.1% vs. 3.7%
19.4 no bias; 83.7% vs. 83.3%
19.5 bias in favor of celebrants; 73.5% vs. 88%
19.6 bias against south Canadians; 63.8% vs. 52%
19.7 no bias; 56.3% vs. 58%
19.8 bias against passport holders; 47.4% vs. 32%
19.9 bias in favor of Sanjuaneros; 72.4% vs. 86%
19.10 no bias; 57.9% vs. 59%

About 39 million of the 340 million residents of the United States live in California. If you sampled 500 Americans and 60 lived in California, would this imply bias in your sample? If so, is the bias for or against those from California?

19.1

About 825,000 of the 1.96 million residents of Idaho live in the Boise metro area. If you sampled 200 Idahoans and 124 lived in or near Boise, would this imply bias in your sample? If so, is the bias for or against those from Boise?

19.2

About 5.5 million of the 68 million residents of the United Kingdom live in Scotland. If you sampled 1000 British citizens and 37 lived in Scotland, would this imply bias in your sample? If so, is the bias for against those from Scotland?

19.3

About 103 million of the 123 million Japanese live on the main island of Honshu. If you sampled 30 Japanese citizens and 25 lived on Honshu, would this imply bias in your sample? If so, is the bias for against those on Honshu?

19.4

About 250 million of the 340 million residents of the United States celebrate Halloween. If you sampled 200 Americans and 176 celebrate Halloween, would this imply bias in your sample? If so, is the bias for or against celebrants?

19.5

About 25.6 million of the 40.1 million Canadians live south of Seattle. If you sampled 500 Canadians and 260 lived south of Seattle, would this imply bias in your sample? If so, is the bias for or against the south Canadians?

19.6

About 580,000 of the 1.03 million residents of Delaware live in New Castle County. If you sampled 50 Delawareans and 29 lived in New Castle County, would this imply bias in your sample? If so, is the bias for or against New Castle?

19.7

About 161 million of the 340 million Americans have a valid passport. If you sampled 200 Americans and 64 had a passport, would this imply bias in your sample? If so, is the bias for or against the passport holders? 19.8	About 2.36 million of the 3.26 million Puerto Ricans live in the San Juan CSA*. If you sampled 100 Puerto Ricans and 84 lived near San Juan, would this imply bias in your sample? If so, is the bias for or against the Sanjuaneros? *Combined Statistical Area 19.9
About 217,000 of the 375,000 residents of Iceland live in Greater Reykjavik. If you sampled 500 Icelanders and 295 lived near Reykjavik, would this imply bias in your sample? If so, is the bias for or against the Reykvíkingurs? 19.10	

21) Combinatorics

First half problems (5.2-5.4)

21.1 165
21.2 720
21.3 40,960,000
21.4 259,459,200
21.5 1,481,760
21.6 508,032,000
21.7 40,320
21.8 12,376
21.9 48,828,125
21.10 150,392,960
21.11 256
21.12 1,632,960

Second half problems (5.5-5.8)

21.13 220
21.14 50,400
21.15 27,720
21.16 3876
21.17 25
21.18 10

A pizza place is offering a special on 3-topping pizzas. If the restaurant offers 11 different kinds of toppings, how many different 3-topping pizzas could be made?

21.1

If you receive one PowerPoint slide from each of six team members, how many different ways could these be ordered for a final presentation?

21.2

Four people walk into a karaoke bar wanting to sing their favorite song. If the machine has a library of 80 songs, how many different ways could the group choose favorite songs? (Do not consider the order of the performances.)

21.3

A wedding DJ has a list of 15 songs from which to construct a playlist of 8 songs for the first part of the reception. How many different playlists could be created? (Different orderings of the same songs count as different playlists.) 21.4	Downloading songs for a road trip, you wish to choose 6 of the 10 Billy Joel songs you have, 5 of the 8 Paul Simon songs, and 4 of the 9 Elton John songs. How many ways could these songs be downloaded? (Do not consider the order.) 21.5
Creating a slide show of your vacation, you want to pick 3 of your 7 photos from Florence, then 4 of your 6 photos from Rome, and finally end with 5 of your 8 photos from Sicily. How many slide shows could you create? (Order matters.) 21.6	How many different ways could 8 different collectible figurines be placed in a row along a shelf? 21.7

How many ways could a volleyball coach select a starting line-up of six players from a team of 17 players? 21.8	During a literature course, each of the eleven students read five novels. For the final paper, each student picked their favorite book for additional analysis. How many ways could the class make their selections? 21.9
A game master must build a deck of monsters for his adventure. He needs to choose one monster for each of the seven levels of the game, and he has 18 monsters to choose from (no repeats allowed). How many ways can he build the deck? 21.10	A sandwich shop has eight different vegetable toppings. If a customer can choose any number of toppings (including all or none of them) at no extra charge, how many different ways could the customer choose toppings for her sandwich? 21.11

In a writing class of eight students, each student wrote three short stories. The instructor must choose five students to present at an event in some order, each reading one of their stories. How many different programs could be created? 21.12	A nine-headed hydra is attacking a party of four adventurers. The indistinguishable heads act independently of the others. How many ways could the nine heads distribute their attacks among the four adventurers? 21.13
A player is holding ten Skip-Bo cards. Three 1's, two 3's, one 5, one 8, and three 12's. Cards of the same value are indistinguishable. In how many different ways could these cards be ordered and played, one at a time? 21.14	An instructor has decided to award eleven students grades in the following distribution: three A's, five B's, two C's, and one D. (no one failed!) How many different ways could these grades be assigned to the eleven students? 21.15

A city purchased 15 identical red-light cameras. How many different ways could they be distributed among the five districts of the city? 21.16	A Phase 10 deck has eight cards of each number from 1 to 12. How many numbered cards must be drawn to guarantee that a player will be holding three of the same value? (Ignore the wild and skip cards in the deck.) 21.17
Of the 25 people attending a party, 11 are wearing smart watches while eight are wearing bracelets. If four of those people are wearing both a smart watch and a bracelet, how many people at the party have neither on their wrists? 21.18	

22) Probability

Basic Probability

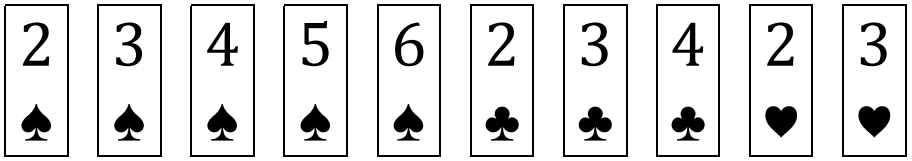
21.1 165
21.2 720
21.3 40,960,000
21.4 259,459,200
21.5 1,481,760
21.6 508,032,000

Probability with Combinatorics

21.7 40,320
21.8 12,376
21.9 48,828,125
21.10 150,392,960
21.11 256
21.12 1,632,960

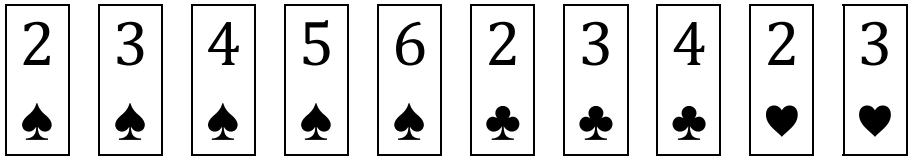
Second half problems (5.5-5.8)

21.13 220
21.14 50,400
21.15 27,720
21.16 3876
21.17 25
21.18 10



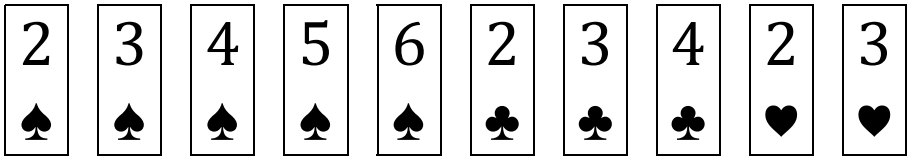
What is the probability of drawing a 4 from this small deck of cards?

22.1



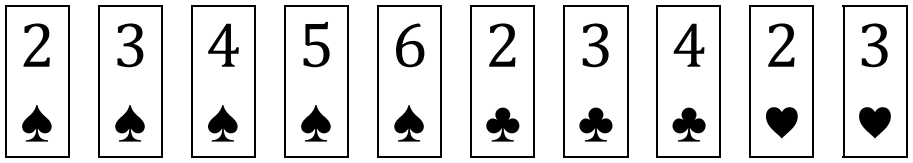
What is the probability of drawing a club (♣) from this small deck of cards?

22.2



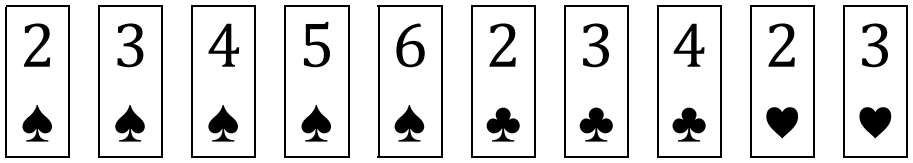
What is the probability of drawing a 2 or a spade (♠) from this small deck of cards?

22.3



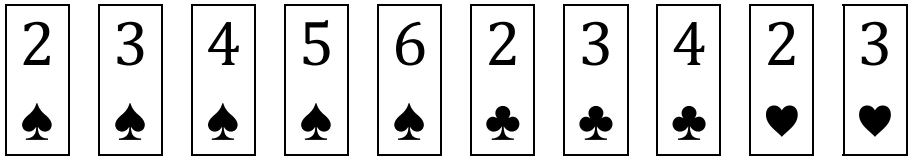
What is the probability of drawing an odd number from this small deck of cards?

22.4



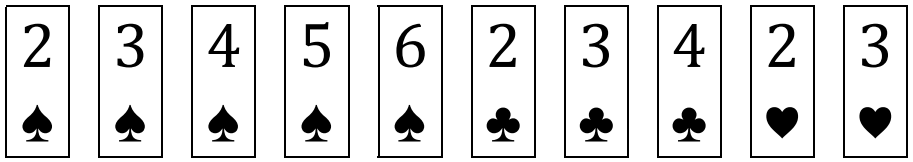
What is the probability of ***not*** drawing a 2 from this small deck of cards?

22.5



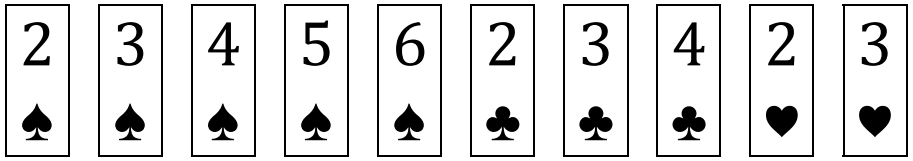
What is the probability of ***not*** drawing a heart (♥) from this small deck of cards?

22.6



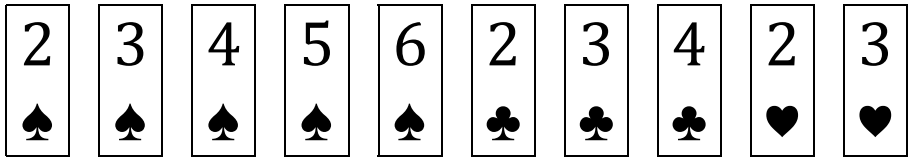
What is the probability of drawing two spades (♠) in a row from this small deck of cards?

22.7



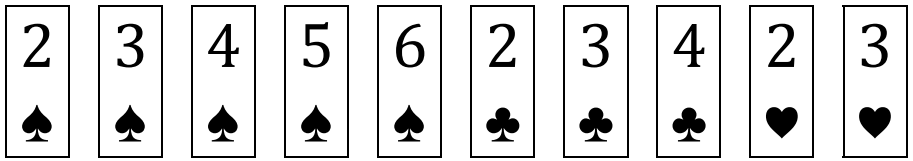
What is the probability of drawing exactly two clubs (♣) in three draws from this small deck of cards?

22.8



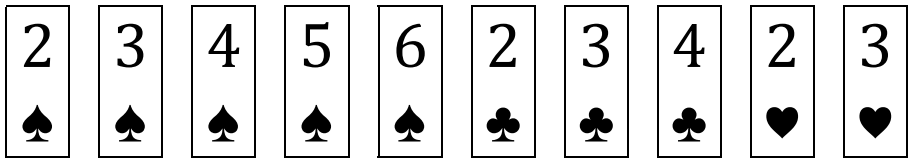
What is the probability of drawing no hearts (♥) in four draws from this small deck of cards?

22.9



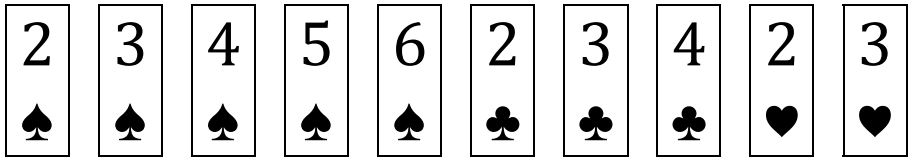
What is the probability of drawing only even numbers in three draws from this small deck of cards?

22.10



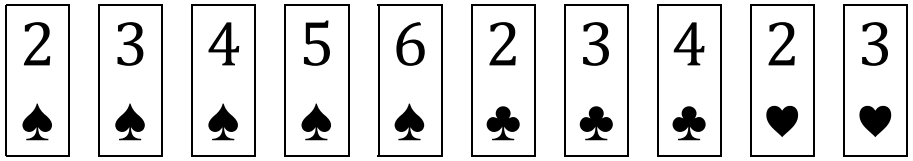
What is the probability of drawing two cards of the same suit from this small deck of cards?

22.11



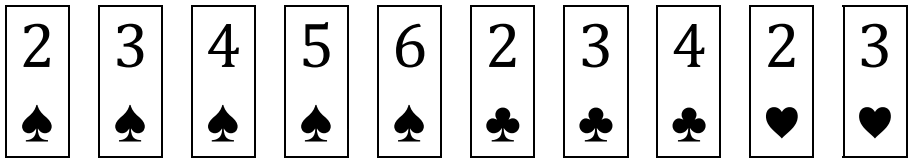
What is the probability of drawing two cards that add to eight from this small deck of cards?

22.12



What is the probability of drawing a 3 from this small deck of cards if we know the card drawn is not a heart (♥)?

22.13



What is the probability of drawing a spade (♠) from this small deck of cards if we know the card drawn is not a 2?

22.14

A blue die has a 30% chance of rolling a 6, while a red die has a 40% chance of rolling a 6. Rolling both dice, what is the probability of getting at least one 6?

22.15

What is the probability of rolling a pair of ones using an eight-sided die and a twelve-sided die?

22.16

Abby has a 30% chance of being late to class today. If Abby is late, Brad has a 70% chance of being late. But if Abby is not late, Brad has only a 20% chance of being late. What is the probability Brad is late if we know nothing about Abby?

22.17

A pile of coins has 200 1-euro coins, 45% of which are from Germany, and 300 2-euro coins, 40% of which are from Germany. If you draw a random coin, and know it is minted in Germany, what is the probability it is a 2-euro coin?

22.18