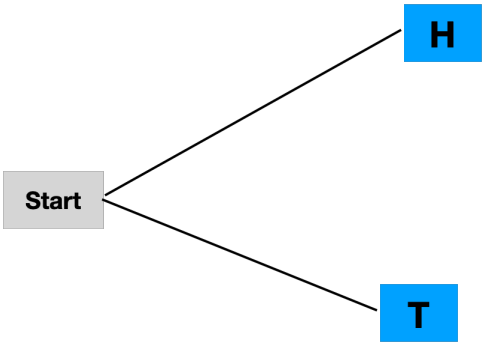
Probability and Odds Solutions

Draw the tree diagram for the following experiments and determine the sample space S.

1. Flip a coin.



If you flip a coin, what's the **probability** of flipping a:
Approximate to the nearest thousandths.

2. Heads?

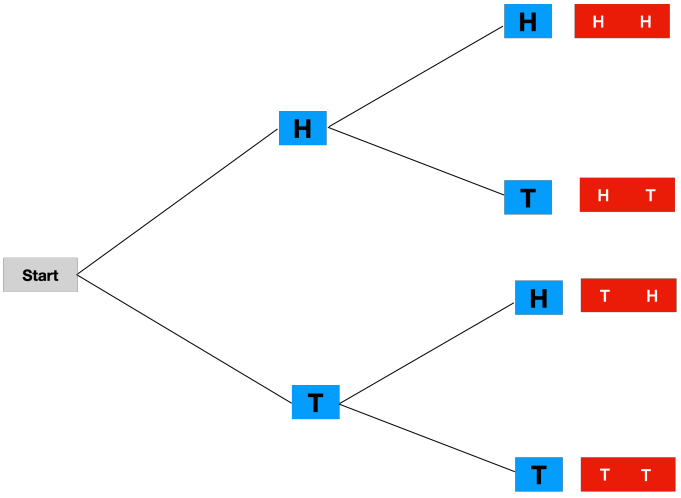
$$\frac{1}{2} \approx 0.500$$

3. Tails?

$$\frac{1}{2} \approx 0.500$$

Draw the tree diagram for the following experiments and determine the sample space S.

4. Flip two coins



If you flip Two coins, what's the **probability** of flipping:
Approximate to the nearest thousandths.

5. Two heads?

$$\frac{1}{4} \approx 0.250$$

6. Two tails?

$$\frac{1}{4} \approx 0.250$$

7. One head?

$$\frac{2}{4} = \frac{1}{2} \approx 0.500$$

8. One tail?

$$\frac{2}{4} = \frac{1}{2} \approx 0.500$$

9. At least one head?

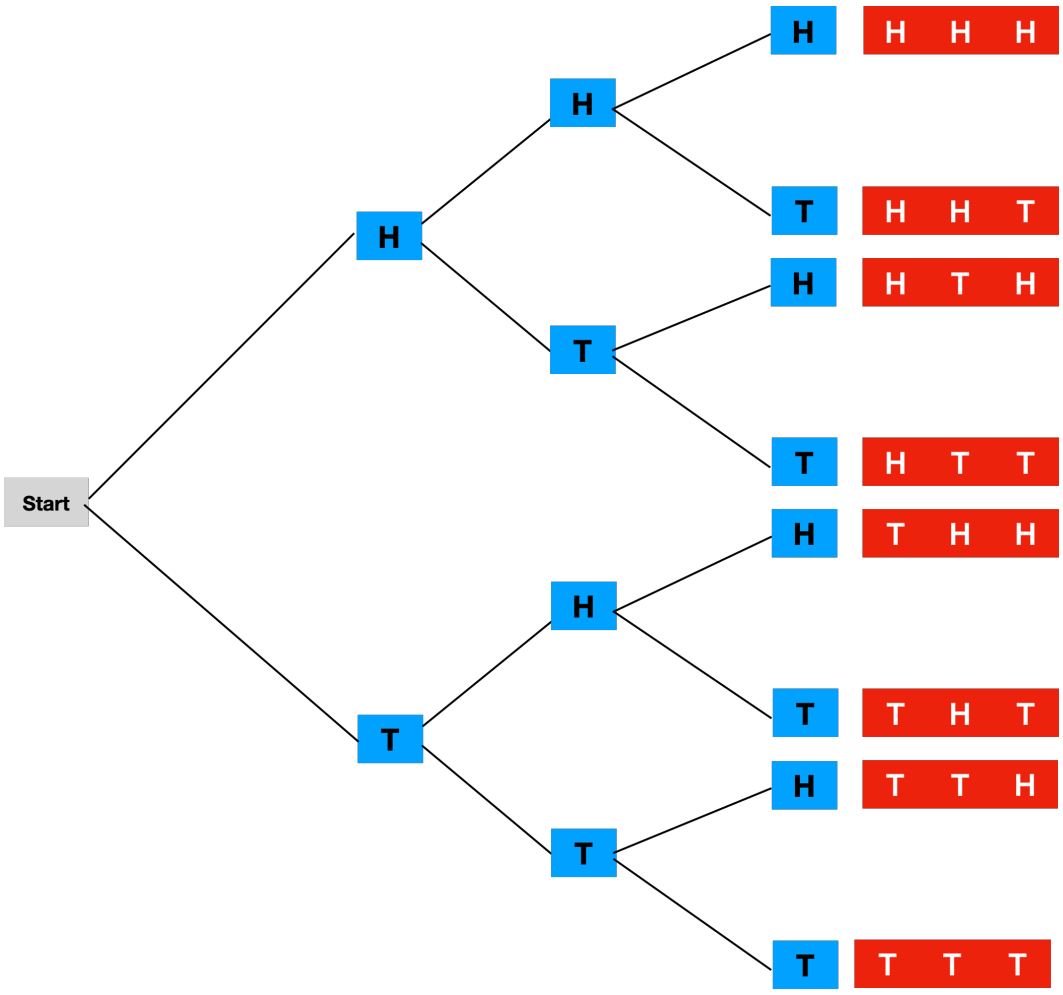
$$\frac{3}{4} \approx 0.750$$

10. More than one heads?

$$\frac{3}{4} \approx 0.750$$

Draw the tree diagram for the following experiments and determine the sample space S.

11. Flip three coins.



If you flip three coins, what's the **probability** of flipping:
Approximate to the nearest thousandths.

12. One heads?

$$\frac{3}{8} \approx 0.375$$

13. Two heads?

$$\frac{3}{8} \approx 0.375$$

14. At least one heads?

$$\frac{7}{8} \approx 0.875$$

15. No more than one heads?

$$\frac{4}{8} = \frac{1}{2} \approx 0.500$$

16. Less than three heads?

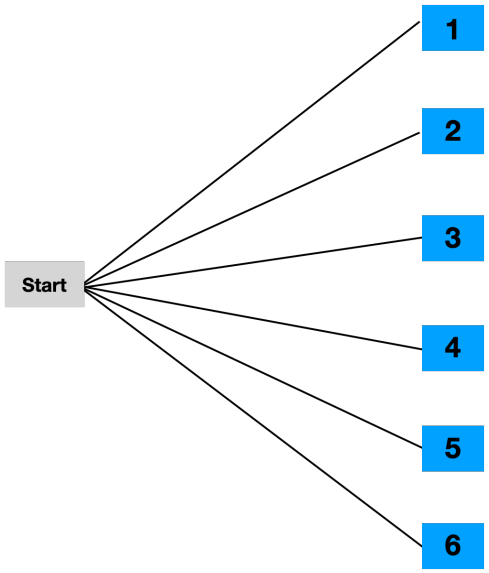
$$\frac{7}{8} \approx 0.875$$

17. More than two heads?

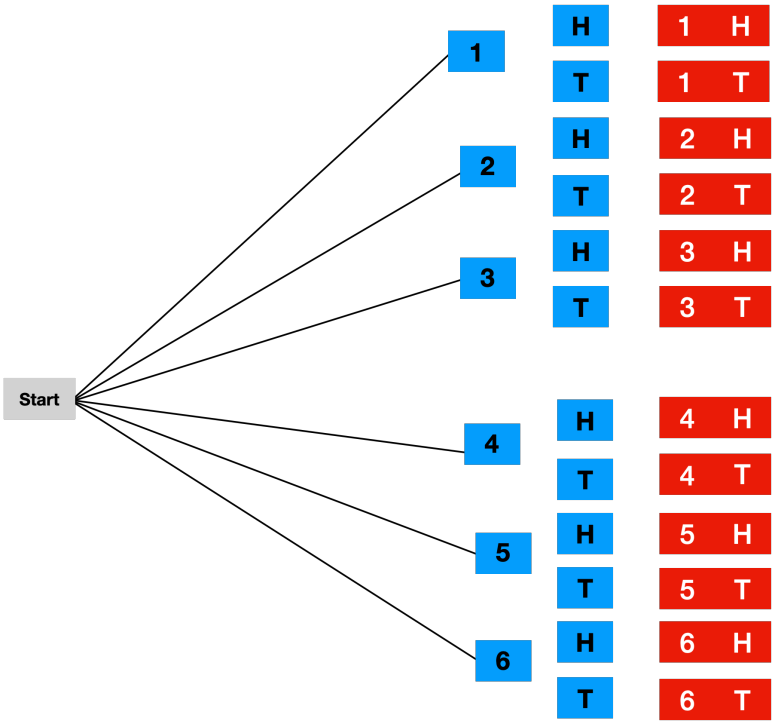
$$\frac{1}{8} \approx 0.125$$

Draw the tree diagram for the following experiments and determine the sample space S.

18. Roll a die.



19. Roll a die and flip a coin.



Bag of Marbles

A bag contains the following marbles.

Approximate to the nearest thousandths.

6 red
4 yellow
2 blue
1 green

If you select a marble at random, what's the **probability** of selecting a:

Approximate to the nearest thousandths.

20. Red marble?

$$\frac{6}{13} \approx 0.462$$

21. Yellow marble?

$$\frac{4}{13} \approx 0.308$$

22. Blue marble?

$\frac{2}{13} \approx 0.154$

23. Green marble?

$\frac{1}{13} \approx 0.077$

24. Non red marble?

$\frac{7}{13} \approx 0.538$

25. Non yellow marble?

$\frac{9}{13} \approx 0.692$

26. Non blue marble?

$\frac{11}{13} \approx 0.846$

Standard Deck

If you select a card from a standard deck assuming the ace is high, what's the **probability** of selecting a:

Approximate to the nearest thousandths.

27. Club?

$\frac{13}{52} = 0.250$

28. Ace?

$\frac{4}{52} \approx 0.077$

29. Red card?

$\frac{26}{52} = 0.500$

30. Red ace?

$$\frac{2}{52} \approx 0.038$$

31. Ace of clubs?

$$\frac{1}{52} \approx 0.019$$

32. Card less than 4?

$$\frac{8}{52} \approx 0.154$$

33. Red card less than 4?

$$\frac{4}{52} \approx 0.077$$

34. Face card?

$$\frac{12}{52} \approx 0.231$$

35. Red Face card?

$$\frac{6}{52} \approx 0.115$$

36. Non club?

$$\frac{39}{52} = 0.750$$

37. Non ace?

$$\frac{48}{52} \approx 0.923$$

38. Non red card?

$$\frac{26}{52} = 0.500$$

39. Non face card?

$$\frac{40}{52} \approx 0.769$$

Titanic Mortality Table

	Men	Women	Boys	Girls	Total
Survived	332	318	29	27	706
Died	1360	104	35	18	1517
Total	1692	422	64	45	2223

If you select a passenger at random, what's the **probability** of selecting a person who:
Approximate to the nearest thousandths.

40. Survived?

$$\frac{706}{2223} \approx 0.318$$

41. Died?

$$\frac{1517}{2223} \approx 0.682$$

42. Man?

$$\frac{1692}{2223} \approx 0.761$$

43. Woman?

$$\frac{422}{2223} \approx 0.190$$

44. Boy?

$$\frac{64}{2223} \approx 0.029$$

45. Girl?

$$\frac{45}{2223} \approx 0.020$$

Roll a Die

If you roll a die, what's the **odds for** rolling a:

46. 4?

$$\frac{1}{6} \approx 0.167$$

47. 1?

$$\frac{1}{6} \approx 0.167$$

48. Even number?

$$\frac{3}{6} = 0.500$$

49. Number at least a 2?

$$\frac{5}{6} \approx 0.833$$

50. Number more than 5?

$$\frac{1}{6} \approx 0.167$$

51. Number no more than 4?

$$\frac{4}{6} \approx 0.667$$

Bag of Marbles
A bag contains the following marbles.

6 red
4 yellow
2 blue
1 green

If you select a marble at random, what's the **odds for** of selecting a:

52. Red marble?

6: 7 unitized 1:1.2

53. Yellow marble?

4: 9 unitized 1:2.3

54. Blue marble?

2: 11 unitized 1:5.5

55. Green marble?

1: 12

Standard Deck
If you select a card from a standard deck assuming the ace is high, what's the **odds for** selecting a:

56. Club?

13: 39 unitized 1:3

57. Ace?

4: 48 unitized 1:4

58. Red card?

26: 26 unitized 1:1

59. Red ace?

2: 50 unitized 1:25

60. Ace of clubs?

1: 51

61. Face card?

12: 40 unitized 1:3.3

62. Red Face card?

6: 46 unitized 1:7.7

Titanic Mortality Table

	Men	Women	Boys	Girls	Total
Survived	332	318	29	27	706
Died	1360	104	35	18	1517
Total	1692	422	64	45	2223

If you select a passenger at random, what's the **odds for** of selecting a person who:

63. Survived?

706: 1517 unitized 1:2.1

64. Died?

1517: 706 unitized 1:0.5

65. Man?

1692: 531 unitized 1:0.3

66. Woman?

422: 1801 unitized 1:4.3

67. Boy?

64: 2159 unitized 1:33.7

68. Girl?

45: 2178 unitized 1:48.4

Unitize the first quantity in the odds (ratio) and approximate the second quantity to the nearest tenths for the Titanic Mortality questions above.

69. Survived?

1: 2.1

70. Died?

1: 0.5

71. Man?

1: 0.3

72. Woman?

1: 4.3

73. Boy?

1: 33.7

74. Girl?

1: 48.4